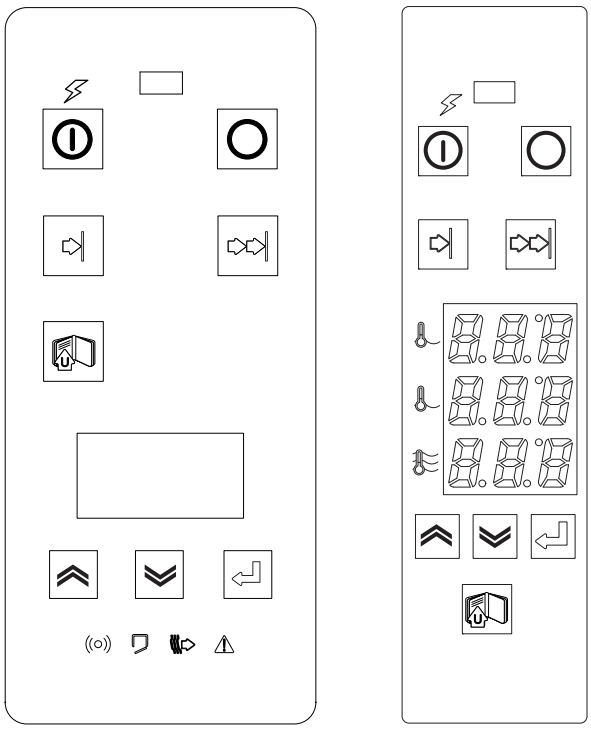
SERVICE MANUAL

MODULAR AND COMPACT

RACK-TYPE DISHWASHERS



CONTENTS: This document contains all the parameters and information for programming the electronic boards.

EDITION: 05.2007

Valid for firmware from 1.56 to 1.62

CAUTION:

All the safety regulations and procedures to be followed by the Specialised Technician/Technical Assistance performing electrical, mechanical or electronic maintenance operations are contained in the instruction manual supplied with the machine: refer to this document before operating. This applies for anyone carrying out operations using these documents. The specialised technician must wear personal protection equipment suitable for the work being performed (e.g. gloves, safety glasses and shoes, suitable clothing, etc.) and use appropriate tools, equipment and auxiliary means.

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INDEX OF FIGURES AND TABLES

N.B. The vertical lines on the left of the text indicate additions with respect to the previous edition.

A FUNCTION KEYS

BUTTONS USED

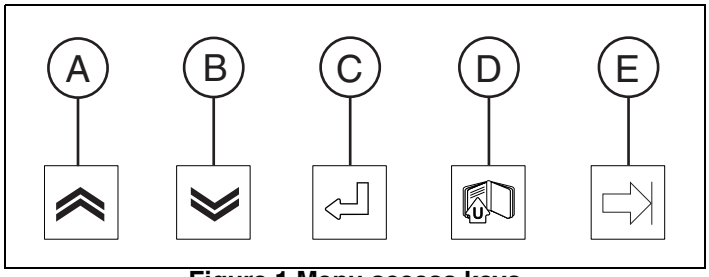


Figure 1 Menu access keys

A1 DISPLAY OF AUXILIARY VALUES

From the normal machine operation mode it is possible to see several screens not accessible to the user. These screens give various machine values, and are accessed by pressing at the same time the combinations of buttons displayed. (Figure 4).

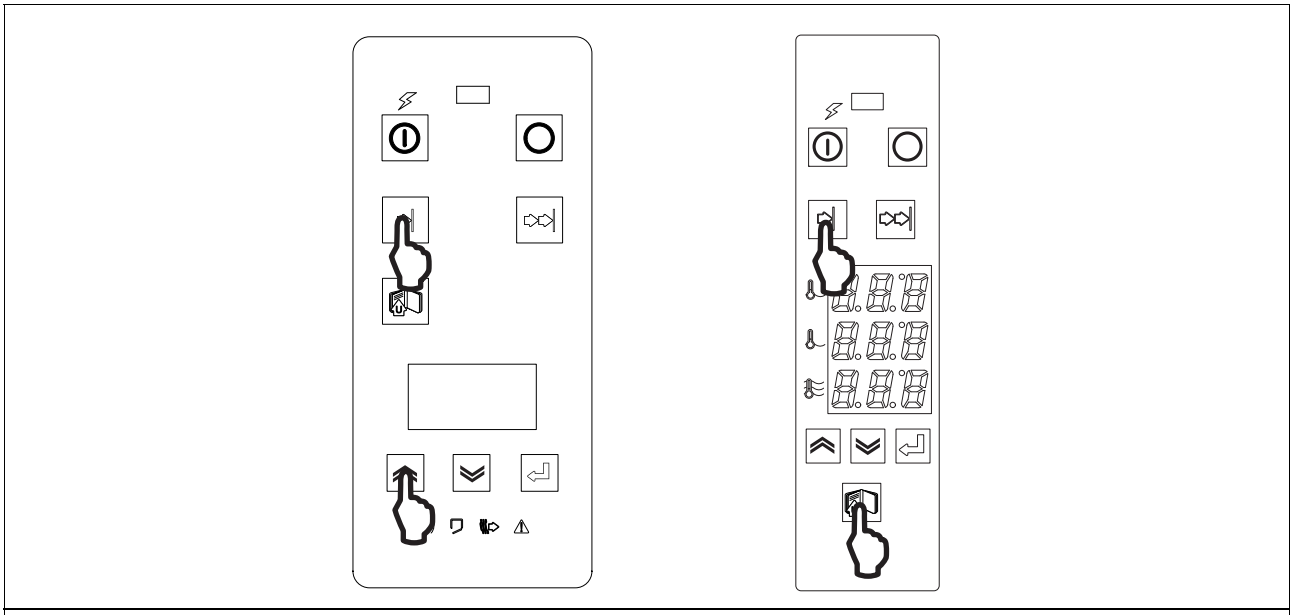
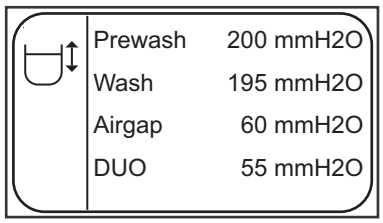


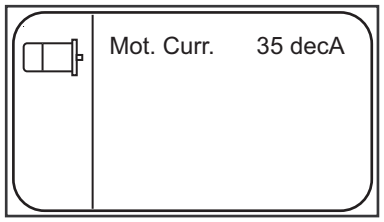
Figure 2 Accessing current, temperatures and levels display mode

A1.1 MODULAR MACHINES

Press the Speed1 - “E” (Figure 1) - and Increase buttons - “A” (Figure 1) - at the same time for a few seconds to access the screen displaying the levels of the various tanks and airgap.



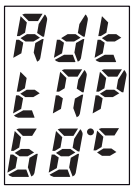
Press the Increase button - “A” (Figure 1) - to access the screen giving the current absorbed by the gear motor.



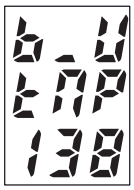
To return to the standard display, wait 30 seconds or press the Confirm button - “C” (Figure 1) -.

A1.2 COMPACT MACHINES

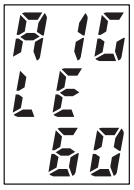
Press the Speed1 button - “E” (Figure 1) - and Accessory Functions button - ”D” (Figure 1) - at the same time for a few seconds to access the first screen; press the Increase button - “A” (Figure 1) - to access the subsequent screens. The following screens are displayed (in order) :



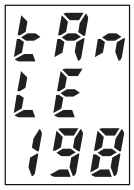
① DT temperature (significant only for machines with DT)



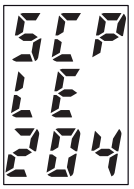
② Temperature of first boiler (significant only for USA machines with 2 boilers)



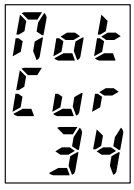
③ Air Gap level (significant only for atmospheric machines)



④ Wash tank level



⑤ Prewash tank level (significant only for machines with prewash)



⑥ Gear motor current

To return to the standard display, wait 30 seconds or press the Confirm button - “C” (Figure 1) -.

A2 ACCESSING THE USER MENU AND SERVICE MENU

From normal machine operation mode all the parameters and information can be accessed for programming the electronic boards by pressing the combinations of keys displayed in (Figure 3) and in (Figure 4).

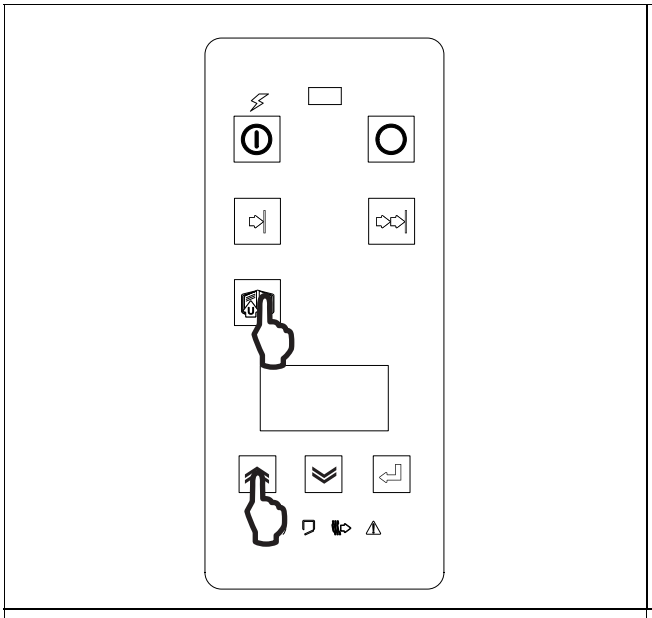


Figure 3 Accessing the USER MENU

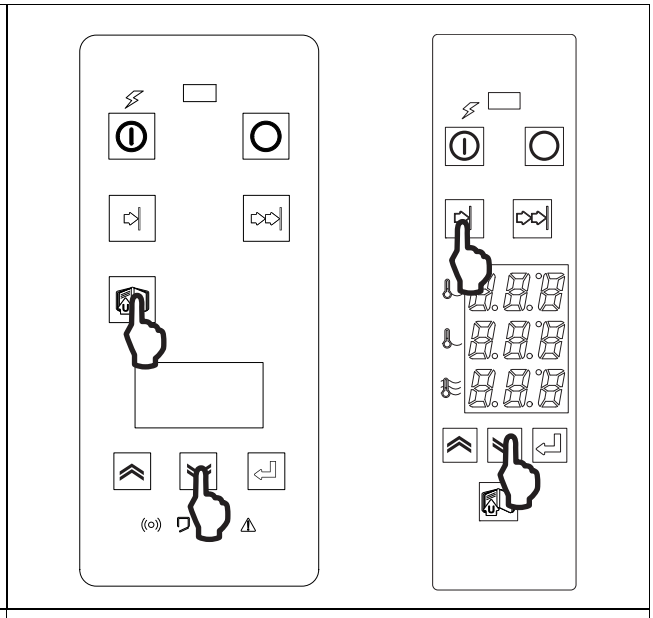


Figure 4 Accessing the SERVICE MENU

From the USER MENU and SERVICE MENU it is possible to access the following parameter families and information see (Figure 5) and (Figure 6) using the increase (“A” - (Figure 1)) and decrease (“B” - (Figure 1)) keys to select the object, the confirm key (“C” - (Figure 1)) to access the selected object and the accessory functions key (“D” - (Figure 1)) to exit the object.

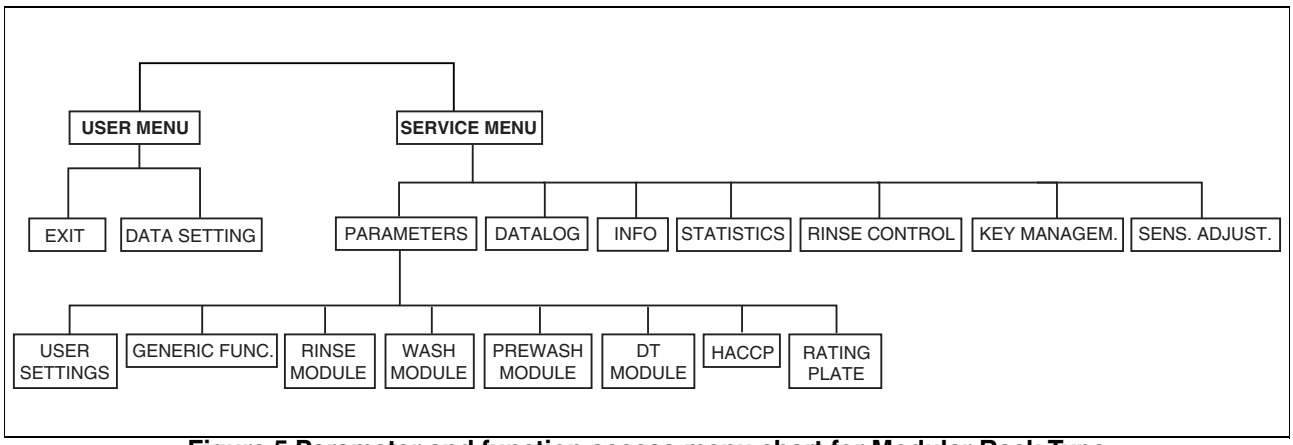


Figure 5 Parameter and function access menu chart for Modular Rack Type

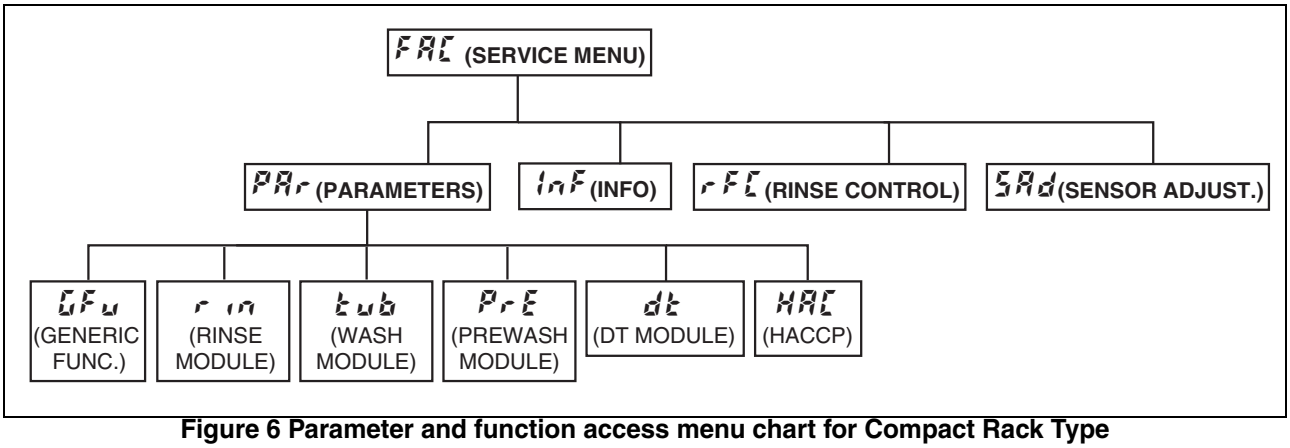
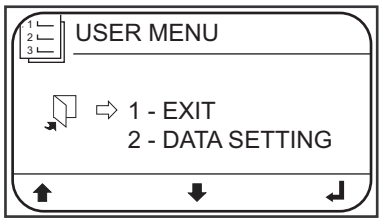


Figure 6 Parameter and function access menu chart for Compact Rack Type

A3 USER MENU (ONLY FOR MODULAR RACK TYPE)

Press the accessory functions keys (“D” - (Figure 1)) and the increase key (“A” - (Figure 1)) at the same time for several seconds to access the USER MENU.



The current date and time used in recording events (see par. A4.2 DATALOG (ONLY FOR MODULAR RACK TYPE)) and statistics (see A4.4 STATISTICS (ONLY FOR MODULAR RACK TYPE)) can be set inside the USER MENU.

CAUTION:

At first machine start-up make sure the date and time are correctly set.

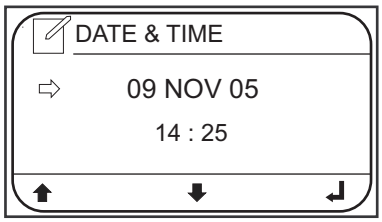
The various USER MENU items can be selected by using the increase (“A” - (Figure 1)) and decrease (“B” - (Figure 1)) keys.

A3.1 EXIT

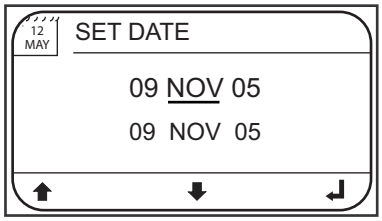
Press the confirm key (“C” - (Figure 1)) when the selection arrow indicates the item EXIT to return to normal machine operation.

A3.2 DATA SETTING

Press the confirm key (“C” - (Figure 1)) when the selection arrow indicates the item DATA SETTING and the display will show the set date and time:

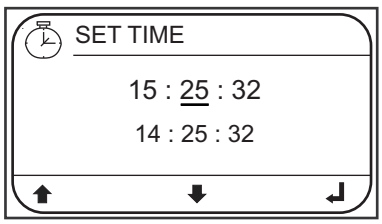


Press the accessory functions key (“D” - (Figure 1)) to display the USER MENU again. To modify the set date, select the date with the increase (“A” - (Figure 1)) and decrease (“B” - (Figure 1)) keys and press the confirm key (“C” - (Figure 1)). The display shows the current date at the bottom and the date being set at the top.



Use the increase, decrease and confirm keys to modify the date.

To modify the set time, select the time with the increase and decrease keys and press the confirm key. The display shows the current time at the bottom and the time being set at the top.

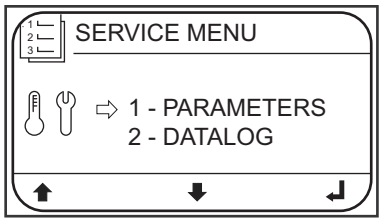


Use the increase, decrease and confirm keys to modify the time.

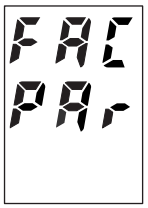
A4 SERVICE MENU

Press the accessory functions key (“D” - (Figure 1)) and the decrease key (“B” - (Figure 1)) at the same time for several seconds to access the SERVICE MENU.

MODULAR RACK TYPE



COMPACT RACK TYPE



Inside the SERVICE MENU it is possible to:

- display and edit all the machine parameters;
- access the DATALOG, i.e. a file of events that occurred during machine operation (only for modular rack type);
- display information of a general nature, such as the machine software versions;
- consult a file of statistics relevant to the various machine load activation times and starts (only for modular rack type).
- adjust the rinse flowrate cock (just for atmospheric rack type).
- Save the parameters, datalog content and content of the statistics in a removable backup memory (for modular RT's only).
- Set the pressure sensors that detect the levels of the airgap, Duo rinse tank, wash tank and prewash tank.

CAUTION:

After entering the SERVICE MENU switch the machine off and then on again to return to normal operation.

The various SERVICE MENU items can be selected by using the increase (“A” - (Figure 1)) and decrease (“B” - (Figure 1)) keys.

A4.1 PARAMETERS

Press the confirm key (“C” - (Figure 1)) when the arrow indicates the PARAMETERS item and the display will show the first family of parameters.

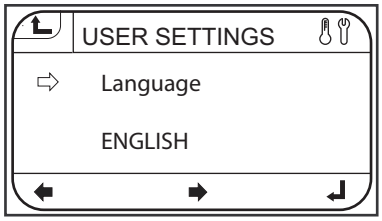
A4.1.1 USER SETTINGS (ONLY FOR MODULAR RACK TYPE)

The USER SETTINGS family contains parameters for setting the user interface.

Use the increase and decrease keys to select the other parameter families.

Press the accessory functions key (“D” - (Figure 1)) to display the SERVICE MENU again.

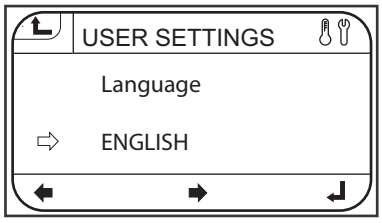
Press the confirm key (“C” - (Figure 1)) to access the first parameter of the USER SETTINGS family.



Press the accessory functions key (“D” - (Figure 1)) to display the USER SETTINGS family again.

Use the increase and decrease keys to select the other parameters of the USER SETTINGS family.

Press the confirm key to edit the selected parameter; the selection arrow moves from the parameter name to the parameter value.



Use the increase and decrease keys to modify the parameter value. Press the confirm key to save the new set value. Press the accessory functions key to exit without saving the new setting.

The USER SETTINGS family parameters are described below:

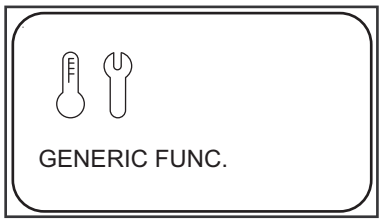
Parameter name	Family Nr.	Parameter Nr.	Parameter description	Unit of measure	Min	Max	Factory setting
Language	0	0	Allows setting of required language	-	-	-	English
Contrast	0	1	Allows setting of screen contrast	-	0	5	3

A4.1.2 GENERIC FUNC.

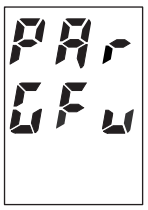
The GENERIC FUNC. family parameters are selected and edited by using the keys in the same way as that described for the USER SETTINGS family.

The GENERIC FUNC. family contains parameters that identify several general machine characteristics.

MODULAR RACK TYPE



COMPACT RACK TYPE



The GENERIC FUNC. family parameters are described below:

Modular parameter	Compact parameter	Family Nr.	Parameter Nr.	Parameter description	Unit of measure	Min	Max	Factory setting [for WTM165 (*)]
Appl. type	APt	1	0	Machine type for modular rack type: Ws Ri : 2 modules rinse and wash. Pw Ws Ri : 3 modules rinse, wash and prewash. Pw Ws Ri Dt: 4 modules rinse, wash, prewash and DT. Ws Ri Dt: 3 modules rinse, wash and DT.	-	-	-	Ri Ws
				Machine type for compact rack type: 4: Compact pressurized plumbing circuit 5: Compact atmospheric plumbing circuit 6: Compact pressurized plumbing circuit with dt 7: Compact atmospheric plumbing circuit with dt 8: Compact pressurized plumbing circuit with prewash 9: Compact atmospheric plumbing circuit with prewash 10: Compact pressurized plumbing circuit with prewash and dt 11: Compact atmospheric plumbing circuit with prewash and dt 12: Compact Usa 13: Compact Usa with DT 14: Compact Usa with prewash 15: Compact Usa with prewash and DT	-	-	-	
Appl. direct.	Ad	1	1	Rack pulling direction (meaningful parameter only for Modular Rack Type): LEFT: left rack insertion. RIGHT: right rack insertion.	-	LEFT	RIGHT	RIGHT
Speed nr. 1	SP1	1	2	Indicates gear motor operation frequency at speed 1.	Hz	15	100	27 **(**)**
Wash time sp 1	rd1	1	3	Time between insertion of rack and start of rinse phase when speed 1 is set.	sec	0	250	110
Speed nr. 2	SP2	1	4	Indicates gear motor operation frequency at speed 2.	Hz	15	100	51 **(**)**
Wash time sp 2	rd2	1	5	Time between insertion of rack and start of rinse phase when speed 2 is set.	sec	0	250	58

(*) For the other equipment families, see par. B1.1 MODULAR RACK TYPE

(**)	Modular machine type	WTM140	WTM180	WTM165	WTM200	WTM250	WTM300
(***)	**Racks/h Speed nr. 1**	80	110	90	130	160	180
	Speed nr. 1	25	35	27	40	53	60
	Racks/h Speed nr. 2	140	180	165	200	250	300
	Speed nr. 2	45	59	51	63	83	100

(**)	Compact machine type	RTC90 / CTC90 / WTC90	RTC140 / CTC140 / WTC140	RTC180 / CTC180 / WTC180	RTC220 / CTC220 / WTC220	WT44	WT66
(***)	**Racks/h Speed nr. 1**	90	80	120	180	100	100
	Speed nr. 1	27	25	35	57	31	31
	Racks/h Speed nr. 2	90	140	180	220	200	200
	Speed nr. 2	27	44	57	69	63	63

(***) To comply with Standard DIN 10510 it is advisable to use speed nr. 1

Modular parameter	Compact parameter	Family Nr.	Parameter Nr.	Parameter description	Unit of measure	Min	Max	Factory setting [for WTM165 (*)]
Clean duration	dCd	1	11	Duration of wash phase during self-clean cycle.	sec	0	100	15
Drain enable	drE	1	16	Enabling of drain and self-clean cycles: 0: All the drain and self-clean cycles are disabled. 1: Enables the drain cycle of all tanks in the equipment. 5: Enables the drain cycle of all tanks in the equipment and only the drain cycle for the wash tank. 7: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank and only the drain cycle for the prewash tank. 13: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank and only the drain cycle for the DUO rinse tank. 15: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank, only the drain cycle for the prewash tank and only the drain cycle for the DUO rinse tank. 21: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank and the drain cycle for the air gap. 23: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank, only the drain cycle for the prewash tank and the drain cycle for the air gap. 29: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank, only the drain cycle for the DUO rinse tank and the drain cycle for the air gap. 31: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank, only the drain cycle for the prewash tank, only the drain cycle for the DUO rinse tank and the drain cycle for the air gap. 33: Enables the drain cycle of all tanks in the equipment and the self-clean cycle. **37: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank and the self-clean cycle.** **39: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank, only the drain cycle for the prewash tank and the self-clean cycle.** 45: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank, only the drain cycle for the DUO rinse tank and the self-clean cycle. 47: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank, only the drain cycle for the prewash tank, only the drain cycle for the DUO rinse tank and the self-clean cycle. 49: Enables the drain cycle of all tanks in the equipment and the self-clean cycle and the drain cycle for the air gap. **53: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank and the self-clean cycle and the drain cycle for the air gap.** **55: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank, only the drain cycle for the prewash tank, the self-clean cycle and the drain cycle for the air gap.** **61: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank, only the drain cycle for the DUO rinse tank, the self-clean cycle and the drain cycle for the air gap.** **63: Enables the drain cycle of all tanks in the equipment, only the drain cycle for the wash tank, only the drain cycle for the prewash tank, only the drain cycle for the DUO rinse tank, the self-clean cycle and the drain cycle for the air gap.**	-	0	63	61

Modular parameter	Compact parameter	Family Nr.	Parameter Nr.	Parameter description	Unit of measure	Min	Max	Factory setting [for WTM165 (*)]
Heat two comm.	H2C	1	18	Modular Rack Type: Wash tank heating element management mode; if set on "Yes" the two heating elements are managed by two separate controls, otherwise they are managed by a single control (See **Figure 7 Scheme for "Heat two comm." parameter and "Heating manage" parameter (only for Modular Rack Type)**).	-	No	Yes	Yes
				Compact Rack Type: Wash tank heating element management mode; if set on "1" the two heating elements are managed by two separate controls, otherwise they are managed by a single control (See **Figura 8 Scheme for "H2C" parameter and "b_t" parameter (only for Compact Rack Type)**).	-	0	1	0
Heating manage	b_t	1	19	Machine heating power management. **Maximum power:** the wash tank heating elements and the boiler heating elements can operate at the same time. **CAUTION:** **Check the electrical system and safety devices ahead of the equipment before setting "Max. power" mode** **Medium power:** when the boiler heating elements are on, only one of the two wash tank heating elements can operate; during the warmup, the tank is heated first and then the boiler, whereas the boiler has priority during normal operation. **Minimum power:** the wash tank heating elements cannot operate when the boiler heating elements are on; during the warmup, the tank is heated first and then the boiler, whereas the boiler has priority during normal operation (See **Figure 7 Scheme for "Heat two comm." parameter and "Heating manage" parameter (only for Modular Rack Type) and Figura 8 Scheme for "H2C" parameter and "b_t" parameter (only for Compact Rack Type)**).				
				Modular Rack Type: **"HIGH" = Maximum power** **"MEDIUM" = Medium power** **"LOW" = Minimum power** **CAUTION:** **THIS CONFIGURATION CAN ONLY WORK ON ELECTRICALLY ARRANGED MACHINES AND THE "Heat two comm." PARAMETER MUST BE SET ON "Yes".** **The machines electrically arranged to operate in "MEDIUM" mode are the WTM165 and the WTM200 models.**	-	LOW	HIGH	MEDIUM
				Compact Rack Type: **"0" = Maximum power** **"2" = Medium power** **"1" = Minimum power** **CAUTION:** **THIS CONFIGURATION "2" CAN NOT BE IMPLEMENTED IN THE ACTUAL VERSIONS OF COMPACT RACK TYPE.**	-	0	1	0

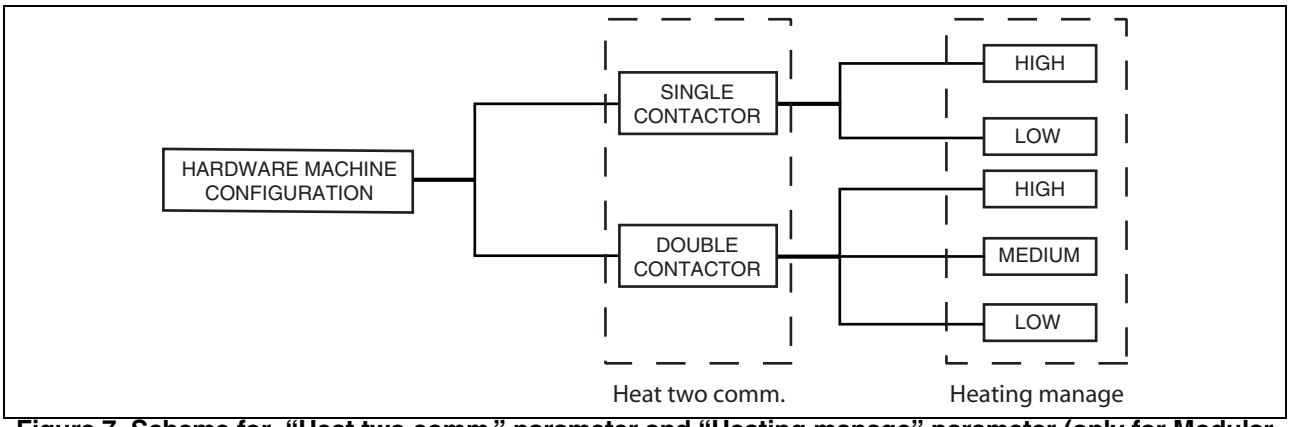


Figure 7 Scheme for "Heat two comm." parameter and "Heating manage" parameter (only for Modular Rack Type)

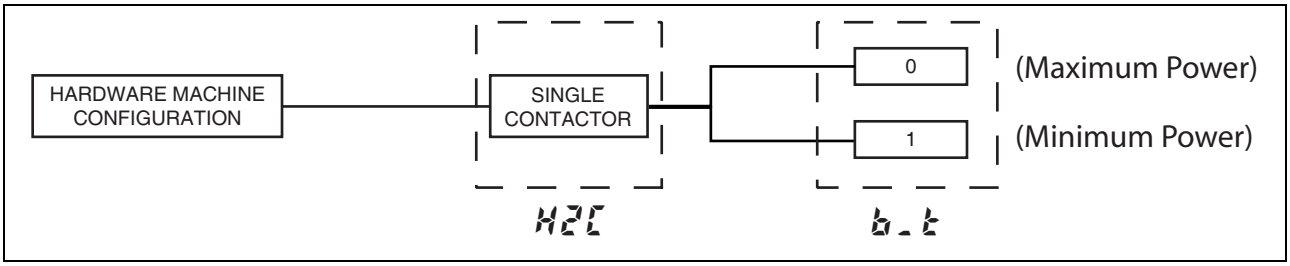


Figura 8 Scheme for "H2C" parameter and "b_t" parameter (only for Compact Rack Type)

Modular parameter	Compact parameter	Family Nr.	Parameter Nr.	Parameter description	Unit of measure	Min	Max	Factory setting [for WTM165 (*)]
Boiler load tank	btF	1	20	Modular Rack Type: Wash tank filling mode: the tank is filled by means of a dedicated solenoid valve.	-	No	Yes	No
				Standard Compact Rack Type: Wash tank filling mode: the tank is filled by means of the rinse arms.	-	0	1	1
				Usa Compact Rack Type: Wash tank filling mode: the tank is filled by means of a dedicated solenoid valve.	-	0	1	0
Sanit. enable	SnE	1	22	Enables sanitization cycle (N.B.: heating element must be installed in prewash module).				
				Modular Rack Type: "No" sanitization cycle disable "Yes" sanitization cycle enable.	-	No	Yes	No
				Compact Rack Type: "0" sanitization cycle disable "1" sanitization cycle enable.	-	0	1	0
Heat pump	HP	1	23	Enables heat pump management. The heat pump contains 1050 g of R134a refrigerant liquid in its hydraulic circuit.				
				Modular Rack Type: "No" heat pump management disable "Yes" heat pump management enable.	-	No	Yes	No
				Compact Rack Type: "0" heat pump management disable "1" heat pump management enable.	-	0	1	0
Fahrenheit vis.	CF	1	25	Unit of measure used in displaying temperatures; if set on "Yes" the temperature is displayed in degrees Fahrenheit, otherwise in degrees Celsius.				
				Modular Rack Type: "No" the temperature is displayed in degrees Celsius "Yes" the temperature is displayed in degrees Fahrenheit.	-	No	Yes	No
				Compact Rack Type: "0" the temperature is displayed in degrees Celsius "1" the temperature is displayed in degrees Fahrenheit.	-	0	1	0

Buzzer enabled.	b_E	1	26	Enables machine buzzer.				
				Modular Rack Type: “No” machine buzzer disable “Yes” machine buzzer enable.	-	No	Yes	Yes
				Compact Rack Type: - The buzzer is always enabled.	-	0	1	0
Demo mode	dMo	1	27	Demo mode.				
				Modular Rack Type: - “No demo” normal operation. - “Demo mec” the users are not activated and the inputs are not read, but communication between the USER card and POWER cards is maintained . - “Demo user” the users are not activated, the inputs are not read, the USER card doesn’t communicate with the POWER cards.	-	-	-	No demo
				Compact Rack Type: - “0” normal dishwasher operation. - “1” the users are not activated and the inputs are not read, but communication between the USER card and POWER cards is maintained . - “2” not available on these models.	-	-	-	0
Rinse autostart.	r_A	1	28	Indicates the type of command for the start of the rinse phase. It can be set to “Mechanical” (1) only if the special mechanical lever is present in the rinse zone. **		Software/0	Mechanical/1	Software/0
Max. motor curr.* **	dCU ***	1	29	Indicates the maximum current supplied from the inverter to the gear motor. If the supplied current is higher than this value,the message “CROCKERY STUCK” appears on modular Rack Type and the message “ SEE IREM InSIdE” on compact Rack Type.	dec Amp. -	0 -	40 -	35 (110Vac gearmotor) 0 (230Vac gearmotor)
Set default par.	SPd	1	30	It allows all the parameters to be set to their default value. The set parameters are those of a WTM165 without DT. The parameter set to “Yes” (1) automatically returns to “No” (0).	-	No/0	Yes/1	No/0

(*) For the other equipment families, see par. Table 1 Machine codes list and relative programming sheets.

** The table given below indicates the delay between transit of the rack on the autorinse lever and stopping of the rinse phase.
E.g. in a WTM165 working at high speed (165 racks/h) the rinse pump keeps operating for 11 seconds after the last rack has released the autorinse lever.

	Speed n°1 (Hz)	Capacity speed n°1 (racks/hour)	Delay speed n° 1 (sec)	Speed n°2 (Hz)	Capacity speed n°2 (racks/hour)	Delay speed n° 2(sec)
WTM140	25	80	22	45	140	12
WTM165	27	90	20	51	165	11
WTM180	35	110	15	58	180	9
WTM200	40	130	13	63	200	9
WTM250	53	160	10	83	250	6
WTM300	60	180	9	100	300	5

*** Procedure for correctly setting the “Max. motor curr.” parameter:

1. Wait until the machine, complete with tables, is ready for a wash cycle.
2. Start a wash cycle and read the current absorbed by the gear motor (refer to par. A1 “DISPLAY OF AUXILIARY VALUES”).
3. Add 2 to the read value (e.g. if “Motor current” = 34 ---> 34+2=36 decA).
4. Set the “Max. motor curr.” parameter with the value thus obtained.

CAUTION:

The Rack Type leaves the factory with the “Max motor curr.” parameter already set to the optimum value. Reset it only when replacing a PCB or the gear motor.

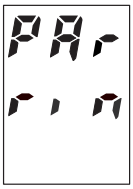
A4.1.3 RINSE MODULE

The RINSE MODULE family parameters are selected and edited by using the keys in the same way as that described for the USER SETTINGS family.

The RINSE MODULE family contains the parameters that identify the rinse module characteristics.

MODULAR RACK TYPE

COMPACT RACK TYPE



The RINSE MODULE / r in family parameters are described below:

Modular parameter	Compact parameter	Family Nr.	Parameter Nr.	Parameter description	Unit of measure	Min	Max	Factory setting
Max. lev. airgap(*)	ASL (*)	2	0	Max water level in air gap.	mmH2O	30	100	90
Max hist. airgap(*)	ASH(*)	2	1	Hysteresis level relative to max level in the air gap.	mmH2O	0	80	30
Work hist. airgap(*)	AnL (*)	2	2	Water level in the air gap enabling rinse pump operation.	mmH2O	0	100	50
Max. lev. duo (**)	dSL (**) (meaningless for compact family)	2	4	Indicates the maximum level in the Duo rinse tank. The filling stops when the water level reaches this value.	mmH2O	30	100	55
Dm max duo lev. (**)	dSd(**) (meaningless for compact family)	2	5	Meaningful only during ""Drain and clean" cycle. Indicates the maximum level during "Drain and clean" cycle.	mmH2O	10	100	40
Max hist. duo (**)	dSH(**) (meaningless for compact family)	2	6	Indicates the hysteresis level relative to the maximum level in the Duo tank. It is related to the "Max. lev. duo" and to the "Dm max duo lev.".	mmH2O	0	80	15
Work lev. duo (**)	dnL (**) (meaningless for compact family)	2	7	Indicates the water level in the the Duo tank enabling the Duo heating element and the Duo pump operations.	mmH2O	0	50	20
Boil. temp. start	btS	2	9	Boiler temperature set point at start of rinse phase; the initial overtemperature determined by this parameter ensures that the introduction of cold water in the boiler does not lower the rinse water temperature at the start of rinsing.	°C / °F	10/ 50	99/ 210	92/198
Boiler temper.	bot	2	10	Boiler temperature set point.	°C / °F	10/ 50	99/ 210	86/187
Hist. boil temp.	btH	2	11	Hysteresis temperature relative to boiler temperature set point.	°C / °F	0/0	15/ 27	0/0
First boil. temp.	Fbt	2	12	First boiler temperature set point. (Significant only for USA machines with 2 boilers).	°C / °F	0/32	99/ 210	59/138
First boil. hist.	FbH	2	13	Hysteresis temperature relative to first boiler temperature set point. (Significant only for USA machines with 2 boilers).	°C / °F	0/0	15/ 27	0/0
Duo temper.	dut	2	14	DUO rinse tank temperature set point.	°C / °F	5/41	95/ 203	70/158
Hist. duo temp.	dtH	2	15	Hysteresis temperature relative to DUO rinse tank temperature set point.	°C / °F	0/0	50/ 90	5/9
Drain del. airgap	Add	2	17	Time between reaching level "0" (air trap level) in the air gap and stop of rinse pump.	sec	0	200	32
Drain delay duo	ddd	2	19	Time between reaching level "0" (air trap level) in the DUO rinse tank and closing of the drain solenoid valve; allows complete emptying of tank.	sec	0	200	30

Heat. tim. enable	HtE	2	20	Allows enabling/disabling of the boiler heating Time out alarm (alarm 15). If the parameter is set to “No” (0), the alarm 15 does not appear even if the boiler never reaches the setpoint temperature.	-	No/ 0	Yes/ 1	Yes/ 1
Duo heat. unrel.	dHU	2	21	Allows the Duo heating element operation to be freed from that of the other heating elements. If set to “Yes” (1) the Duo heating element can switch on even if the tank and boiler heating elements are on.	-	No/ 0	Yes/ 1	No/ 0
Airgap area	AAG	2	22	Defines the base area of the airgap. This value is used in the “Rinse control” procedure.	mmq	500	999	700

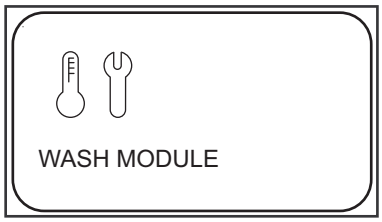
(*) The difference between the max. water level and the hysteresis level must be higher than the work hysteresis airgap.
Max. lev. airgap - Max. hist. airgap Work hist. airgap
ASL - ASH > AnL
(**) The difference between the max. water level and the hysteresis level must be higher than the working level:
Max. lev. duo - Max. hist. duo > Work lev. duo
(**) The difference between the max. water level during drain cycle and the hysteresis level must be higher than the working level:
Dm max duo lev. - Max. hist. duo > Work lev. duo

A4.1.4 WASH MODULE

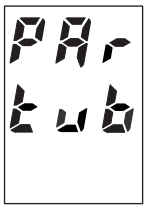
The WASH MODULE family parameters are selected and edited by using the keys in the same way as that described for the USER SETTINGS family.

The WASH MODULE family contains the parameters that identify the wash module characteristics.

MODULAR RACK TYPE



COMPACT RACK TYPE



The WASH MODULE / tub family parameters are described below:

Modular parameter	Compact parameter	Family Nr.	Parameter Nr.	Parameter description	Unit of measure	Min	Max	Factory setting [for WTM165 (*)]
Wash module	tty	3	0	Type of wash module				
				Modular Rack Type: - “1165” module from 1165 mm - “1490” module from 1490 mm.	-	-	-	1490
				Compact Rack Type: - “2” Wash+Rinse module	-	-	-	2
Stanby level (**)	t55(**)	3	1	Indicates the maximum level in the wash tank. The filling stops when the water level reaches this level.	mmH2O	60	400	205
Run max level (**)	t5r(**)	3	2	The value for the maximum level is modified from “Standby level” to “Run max level” during washing phase in order to avoid water loss when the pumps stop.	mmH2O	60	400	170
Drain max lev. (**)	t5d(**)	3	3	Meaninful only during “Drain and clean” cycle. Indicates the maximum level during “Drain and clean” cycle.	mmH2O	60	400	190
Max lev. hister. (**)	t5H(**)	3	4	Indicates the hysteresis level relative to the maximum level in the wash tank. It is related to the “Standby level” to the “Run max level” and to the “Drain max lev.”.	mmH2O	0	80	30
Working level (**)	tnL(**)	3	5	Indicates the water level in the wash tank enabling the wash tank heating elements and the wash pumps operations.	mmH2O	60	400	90
Tank temper.	tut	3	7	Tank temperature set point.	°C / °F	5/41	90/194	66/151
Sanit. temper.	t5t	3	8	Tank temperature set point during the sanitization phase (only on machines with sanitization).	°C / °F	10/50	90/194	75/167

Histesys temp.	tEH	3	9	Hysteresis temperature relative to tank temperature set point.	°C / °F	0/0	50/90	2/4
Max Temp. CU	StC	3	10	Max permissible temperature for the water leaving the CU to enable heat pump operation. If the water leaving the CU exceeds this temperature, the machine continues to work normally but the heat pump (if present) stops. **CAUTION:** **Do not modify this parameter unless expressly required by the factory.**	°C / °F	1/34	90/194	50/122
Hist. Temp. CU	HtC	3	11	Max permissible temperature for the water leaving the CU to enable heat pump operation: if the temperature of the water leaving the CU falls below “Max temp. CU - Hist. temp. CU”, the machine continues to work normally but the heat pump (if present) stops. **CAUTION:** **Do not modify this parameter unless expressly required by the factory.**	°C / °F	1/2	20/46	50/90
Temp. Thresh. CU	ttC	3	12	Meaninful only for machines with heat pump. Indicates the CU temperature when the washing tank heating elements stop. This function is enabled only if the heat pump is installed and allows maintaining the CU temperature compatible with the heat pump features.	°C / °F	20 / 68	70 / 158	48 / 118
Wash san. duration	Std	3	13	Duration of wash tank cleaning phase during a sanitization cycle.	sec	0	250	60
Fan delay start	CGd	3	14	The time between start of wash and start of CU fan (Parameter not significant for Compact Rack Type).	sec	0	200	0
Fan delay stop	CSd	3	15	The time between stop of wash phase and stop of CU fan (Parameter not significant for Compact Rack Type).	sec	0	200	20
Drain delay	dtd	3	17	Time between reaching level “0” (air trap level) in the tank and closing of the drain solenoid valve; allows complete emptying of wash tank	sec	0	200	30
Autom. drain del.	Atd	3	18	Time between two automatic water changes. If this parameter is set at zero the function is disabled.	min	0	250	120
Water to drain	qtd	3	19	Quantity of water to be drained with each automatic emptying.	mmH2O	0	100	25 **(***)**
Condensing unit	CUn	3	20	CU presence.	-	No/0	Yes/1	Yes/1

(*) For the other equipment families, see par. Table 1 Machine codes list and relative programming sheets.

(***)

WASH TANKS	**1165**	**1490**
Tank capacity	100 l	150 l
Water to drain (in litres/mm)	0,32 l/mm	0,485 l/mm

(**) The difference between the max water level and the hysteresis level must be higher than the working level:

Stanby level - Max lev. hister > Working level

tSS - tSH > tni

(**) The difference between the max water level during washing phase and the hysteresis level must be higher than the working level:

Run max level - Max lev. hyster. > Working level

tSr - tSH > tni

(**) The difference between the max water level during drain cycle and the hysteresis level must be higher than the working level:

Drain max lev. - Max lev. hyster. > Working level

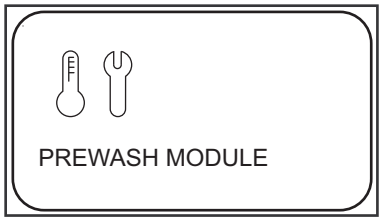
tSd - tSH > tni

A4.1.5 PREWASH MODULE

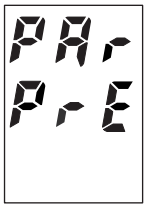
The PREWASH MODULE family parameters are selected and edited by using the keys in the same way as that described for the USER SETTINGS family.

The PREWASH MODULE family contains the parameters that identify the prewash module characteristics.

MODULAR RACK TYPE



COMPACT RACK TYPE



The PREWASH MODULE / PrE family parameters are described below:

(**) The difference between the max water level and the hysteresis level must be higher than the working level:

Modular parameter	Compact parameter	Family Nr.	Parameter Nr.	Parameter description	Unit of measure	Min	Max	Factory setting [for WTM200 (*)]
Prewash module	PtY	4	0	Type of prewash module				
				- "1165-600" module from 1165 mm or from 600 mm - "1490" module from 1490 mm.	-	-	-	1165-600
				- "0" module from 1165 mm or from 600 mm - "1" module from 1490 mm.	-	-	-	0
Stanby level	SbL (**)	4	1	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.	mmH2O	60	400	220
Run level	PSS(**)	4	2	The value for the maximum level is modified from "Stanby level" to "Run level" during prewashing phase in order to avoid water loss when the pumps stop.	mmH2O	60	400	180
Drain max lev.	PSd(**)	4	3	Meaninful only during "Drain and clean" cycle. Indicates the maximum level during "Drain and clean" cycle.	mmH2O	60	400	190
Max lev. hister.	PSH(**)	4	4	Indicates the hysteresis level relative to the maximum level in the prewash tank. It is related to the "Stanby level" , to the "Run level" and to the "Drain max lev.".	mmH2O	0	80	30
Working level	PnL (**)	4	5	Indicates the water level in the prewash tank enabling the prewash tank heating elements and the prewash pumps operations.	mmH2O	60	400	90
Tank temper.	Prt	4	7	Tank temperature set point.	°C / °F	5/ 41	90/ 194	10/50
Sanit. temper.	PSt	4	8	Tank temperature set point during sanitization phase (only on machines with sanitization - N.B.: heating element must be installed in prewash module).	°C / °F	10/ 50	90/ 194	75/167
Histesys temp.	PtH	4	9	Hysteresis temperature relative to tank temperature set point.	°C / °F	1/2	50/90	5/9
Prew. san. durat.	SPd	4	10	Duration of wash tank cleaning phase during a sanitization cycle.	sec	0	250	60
Drain delay	dPd	4	12	Time between reaching level "0" (air trap level) in the tank and closing of the drain solenoid valve; allows complete emptying of tank.	sec	0	200	30
Autom. drain del.	APd	4	13	Time between two automatic water changes. If this parameter is set at zero the function is disabled.	min	0	250	50
Water to drain	qPd	4	14	Quantity of water to be drained with each automatic emptying.	mmH2O	0	50	10 **(****)**
Max temper. prew.	dPt	4	15	Max permissible temperature in prewash tank. If the tank temperature exceeds the set temperature, a quantity of water equal to the quantity set by means of the "Water to drain" parameter is drained. If this parameter is set at zero the function is disabled.	°C / °F	0/ 32	99/ 210	40/104

Stanby level - Max lev. hister > Working level

SbL - PSH > Pnl

(**) The difference between the max water level during washing phase and the hysteresis level must be higher than the working level:
Run level - Max lev. hister > Working level

PSS - PSH > Pnl

(**) The difference between the max water level during drain cycle and the hysteresis level must be higher than the working level:
Drain max level - Max lev. hister > Working level

PSd - PSH > Pnl

(*) For the other equipment families, see par. Table 1 Machine codes list and relative programming sheets.

(****)

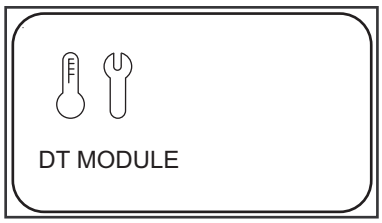
PREWASH TANKS	600	1165	1490
Tank capacity	45 l	100 l	150 l
Water to drain (in litres/mm)	0,136 l/mm	0,32 l/mm	0,485 l/mm

A4.1.6 DT MODULE

The DT MODULE family parameters are selected and edited by using the keys in the same way as that described for the USER SETTINGS family.

The DT MODULE family contains the parameters that identify the drying zone (DT) characteristics.

MODULAR RACK TYPE



COMPACT RACK TYPE

The DT MODULE / dt family parameters are described below:

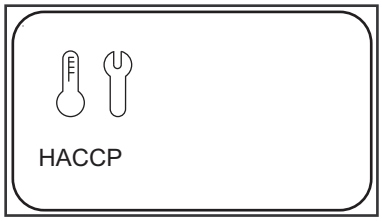
Modular parameter	Compact parameter	Family Nr.	Parameter Nr.	Parameter description	Unit of measure	Min	Max	Factory setting
Dt temper.	dtt	5	0	Drying tunnel temperature set point.	°C / °F	10/ 50	90/ 194	70/158
Dt hist. temp.	dtH	5	1	Hysteresis temperature relative to the drying tunnel temperature set point.	°C / °F	0/0	50/ 90	3/5
Dt fan delay	AFd	5	3	Time between stop of DT heating element and stop of DT fan. This parameter ensures a correct cooling for the DT heating element.	sec	0	250	120
Dt type.	d_t	5	4	Indicates the type of DT installed.	-	Standard /0	New type/ 1	Standard/ 0

A4.1.7 HACCP

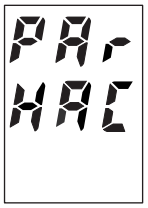
The HACCP family parameters are selected and edited by using the keys in the same way as that described for the USER SETTINGS family.

The HACCP family contains the parameters that identify the HACCP connection characteristics.

MODULAR RACK TYPE



COMPACT RACK TYPE

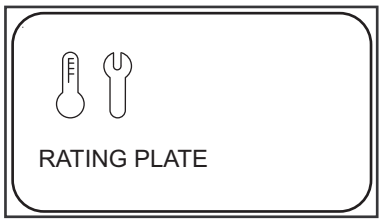


The HACCP / HAC family parameters are described below:

Modular parameter	Compact parameter	Family Nr.	Parameter Nr.	Parameter description	Unit of measure	Min	Max	Factory setting
HACCP address	Adr	6	0	Specific address of equipment in an HACCP network.	-	0	254	1
IR Address	IrA	6	1	Specific address of equipment in an IrDa communication network.	-	0	254	1
HACCP baud rate	Hbr	6	2	Indicates the communication speed of the equipment in an HACCP network.	-	1200/0	19200/4	9600/3
IR baud rate	Ibr	6	3	Indicates the communication speed of the equipment in an IrDa communication network.	-	1200/0	19200/4	9600/3

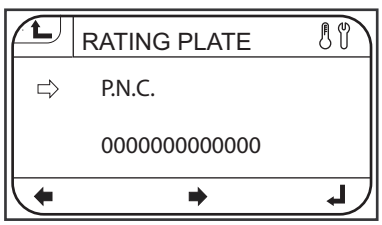
A4.1.8 RATING PLATE (ONLY FOR MODULAR RACK TYPE)

The RATING PLATE family contains the parameters that identify the machine rating data.

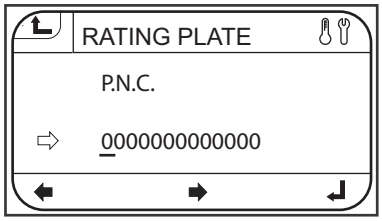


The RATING PLATE family parameters are selected and edited by using the keys in the same way as that described for the USER SETTINGS family except for the "STRING" parameters given in the following table.

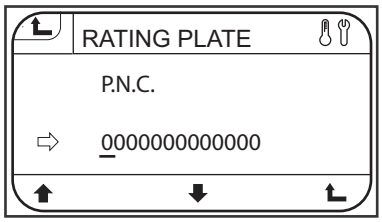
After a “STRING” is displayed



the parameter can be edited by pressing the confirm key; the selection arrow moves from the parameter name to the parameter value.



Use the increase and decrease keys to move the cursor until it is under the digit to be modified. Press the confirm key to modify the selected digit.



The digit flashes and the value of the digit selected can be modified by using the increase and decrease keys. Press the confirm key to save the new value. Press the accessory functions key to exit without saving.

When all the digits have been modified as required, press the accessory functions key to return to parameter selection mode.

The RATING PLATE family parameters are described below:

Parameter name	Family Nr.	Parameter Nr.	Parameter description	Unit of measure	Min	Max	Factory setting	Example	"STRING" parameter
P.N.C.	7	0	Product Number Code	-	-	-	-	534104 00	Yes
Serial number	7	1	Serial number	-	-	-	-	54600001	Yes
Model	7	2	Factory Model	-	-	-	-	WTM165ERA +DT	Yes
Constr. year	7	3	Year of construction	-	-	-	-	2007	Yes
Prod. site	7	4	Production site (6 = Washing)	-	0	10	6	6	Yes
Inst. power	7	5	Installed power	kW	-	-	-	42.3 KW	Yes
Voltage supply	7	6	Power supply voltage	F	-	-	-	AC 400 V 3P N	Yes
Frequency	7	7	Frequency	Hz	50	60	50	50 Hz	No
Max. current	7	8	Absorbed current	A	6	32	6	65A	No
MCA	7	9	MCA (Minimum supply Circuit Ampacity) [for USA versions only]	A	-	-	-	-----	Yes
MOP	7	10	MOP (Maximum Overcurrent Protection) [for USA versions only]	A	-	-	-	-----	Yes
Prot. degree	7	11	Protection rating	-			IPX5	IPX5	Yes
Inst. day	7	12	Installation day (*****)	-	-	-	-	20	Yes
Inst. month	7	13	Installation month (*****)	-	-	-	-	06	Yes
Inst. year	7	14	Installation year (*****)	-	-	-	-	07	Yes

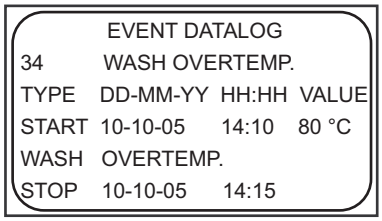
(*****) The installer must set the day, month and year of installation.

A4.2 DATALOG (ONLY FOR MODULAR RACK TYPE)

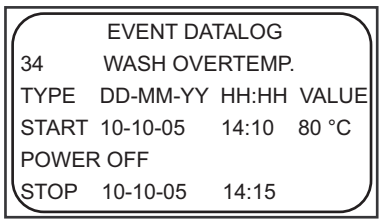
Accessing the "DATALOG" mode allows a number of events that occurred in the machine to be displayed. In addition to the event, the screen also shows the time the event began and ended, as well as other information whose significance depends on the type of event recorded.

Every event is characterised by a START date and time and a STOP date and time.

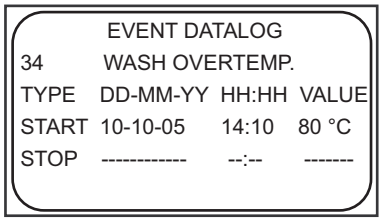
The event STOP can be recorded when its cause is no longer present (e.g. a temperature exceeding the permissible upper limit and then coming within the correct range),



or when the machine is switched off following shutdown by the user (POWER OFF) or no power (POWER FAIL). In the latter case, event STOP is described with the indication POWER OFF or POWER FAIL.



If accessing the display of an event that began after the last machine start and which has not ended because its cause is still present, closing of the event is not displayed.



List of events documented by the DATALOG:

Event number	Event name	Event description	Event value (VALUE)
1	**BOIL. TEMP. HIGH**	The boiler temperature has exceeded the temperature set point by 7 °C/13 °F.	Indicates the boiler temperature at the time of event recording.
2	**DUO TEMP. HIGH**	The duo rinse temperature has exceeded the temperature set point by 8 °C/14 °F.	Indicates the duo rinse temperature at the time of event recording.
3	**WASH. TEMP. HIGH**	The wash tank temperature has exceeded the temperature set point by 8 °C/14 °F.	Indicates the wash tank temperature at the time of event recording.
4	**PREW. TEMP. HIGH**	The prewash tank temperature has exceeded the temperature set point by 35 °C/63 °F.	Indicates the prewash temperature at the time of event recording.
5	**DT TEMP. HIGH**	The dry tunnel temperature has exceeded the temperature set point by 15 °C/27 °F.	Indicates the dry tunnel temperature at the time of event recording.
6	**BOIL. TEMP. LOW**	During the wash phase the boiler temperature has decreased by more than 12 °C/25 °F with respect to the permissible min. value (– hysteresis temperature set point).	Indicates the boiler temperature at the time of event recording.
7	**DUO TEMP. LOW**	During the wash phase the duo rinse temperature has decreased by more than 15 °C/27 °F with respect to the permissible min. value (–hysteresis temperature set point).	Indicates the duo rinse temperature at the time of event recording.
8	**WASH TEMP. LOW**	During the wash phase the wash tank temperature has decreased by more than 15 °C/27 °F with respect to the permissible min. value (–hysteresis temperature set point).	Indicates the wash tank temperature at the time of event recording.
9	**DT TEMP. LOW**	During the wash phase the dry tunnel temperature has decreased by more than 15 °C/27 °F with respect to the permissible min. value (–hysteresis temperature set point).	Indicates the dry tunnel temperature at the time of event recording.
11	**AIRG. FILL. TOUT**	Alarm number 11 has occurred: The Air Gap was not completely filled within the max. filling time.	Indicates the air gap level at the time of event recording.
12	**AIRG. LEV. FAULT**	Alarm number 12 has occurred: The pressure sensor on the rinse module electronic board does not work correctly.	Indicates the air gap level at the time of event recording.
13	**DUO FILL. TOUT**	Alarm number 13 has occurred: The Duo-rinse tank was not completely filled within the max. filling time.	Indicates the duo rinse level at the time of event recording.
14	**DUO LEV. FAULT**	Alarm number 14 has occurred: The pressure sensor on the Duo-rinse tank does not work correctly.	Indicates the duo rinse level at the time of event recording.
15	**BOIL. HEAT. TOUT**	Alarm number 15 has occurred: The required temperature was not reached in the boiler within the max. heating time.	Indicates the boiler temperature at the time of event recording.
16	**BOILER OVERTEMP.**	Alarm number 16 has occurred: The water temperature in the boiler is too high	Indicates the boiler temperature at the time of event recording.
17	**BOILER NTC SHORT**	Alarm number 17 has occurred: The boiler temperature sensor is short circuited.	Not significant
18	**BOILER NTC OPEN**	Alarm number 18 has occurred: The boiler temperature sensor is open.	Not significant
19	**DUO HEAT. TOUT**	Alarm number 19 has occurred: The required temperature was not reached in the Duo-rinse tank within the max. heating time.	Indicates the duo rinse temperature at the time of event recording.
20	**DUO OVERTEMP.**	Alarm number 20 has occurred: The water temperature in the Duo-rinse tank is too high.	Indicates the duo rinse temperature at the time of event recording.
21	**DUO NTC SHORT**	Alarm number 21 has occurred: The Duo-rinse tank temperature sensor is short circuited.	Not significant
22	**DUO NTC OPEN**	Alarm number 22 has occurred: The Duo-rinse tank temperature sensor is open.	Not significant
23	**RIN. PUMP THERM.**	Alarm number 23 has occurred: MODULAR: The rinse pump thermal protector has tripped. COMPACT: The rinse pump thermal protector, the wash pump thermal protector or the CU thermal protector has tripped.	Not significant
24	**DUO PUMP THERM.**	Alarm number 24 has occurred: The Duo-rinse pump thermal protector has tripped.	Not significant
25	**DRAIN DUO TOUT**	Alarm number 25 has occurred: The Duo-rinse tank was not completely emptied within the max. emptying time.	Indicates the duo rinse level at the time of event recording.
27	**INVERTER ERROR**	Alarm number 27 has occurred: The motor control inverter has generated an error.	Indicates the selected speed at the time of event recording.
30	**DRAIN AIRG TOUT**	Alarm number 30 has occurred: The Air gap was not completely emptied within the max. emptying time.	Indicates the airgap level at the time of event recording.
31	**WASH FILL. TOUT**	Alarm number 31 has occurred: The wash tank was not completely filled within the max. filling time.	Indicates the wash tank level at the time of event recording.
32	**WASH LEV. FAULT**	Alarm number 32 has occurred: The pressure sensor on the wash tank does not work correctly.	Indicates the wash tank level at the time of event recording.
33	**WASH HEAT. TOUT**	Alarm number 33 has occurred: The required temperature in the wash tank was not reached within the max. heating time.	Indicates the wash tank temperature at the time of event recording.

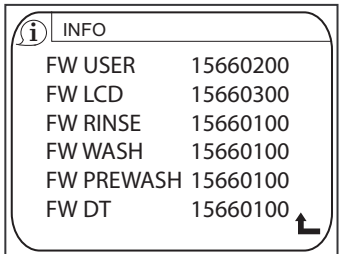
Event number	Event name	Event description	Event value (VALUE)
34	WASH OVERTEMP.	Alarm number 34 has occurred: The water temperature in the wash tank is too high.	Indicates the wash tank temperature at the time of event recording.
35	WASH NTC SHORT	Alarm number 35 has occurred: The wash tank temperature sensor is short circuited.	Not significant
36	WASH NTC OPEN	Alarm number 36 has occurred: The wash tank temperature sensor is open.	Not significant
37	WASH PUMP1 THER.	Alarm number 37 has occurred: The upper wash pump thermal protector has tripped.	Not significant
38	WASH PUMP2 THER.	Alarm number 38 has occurred: The lower wash pump thermal protector has tripped.	Not significant
39	CU FAN THER.	Alarm number 39 has occurred: The CU (condensing unit) fan thermal protector has tripped.	Not significant
40	DRAIN WASH TOUT	Alarm number 40 has occurred: The wash tank was not completely emptied within the max. emptying time.	Indicates the wash tank level at the time of event recording.
42	AIRGAP LEV. LOW	The air gap tank water level has fallen by more than 10 mm with respect to the permissible min. level (–hysteresis set point level).	Indicates the air gap level at the time of event recording.
43	DUO LEV. LOW	The duo rinse tank water level has fallen by more than 10 mm with respect to the permissible min. level (–hysteresis set point level).	Indicates the duo rinse level at the time of event recording.
44	WASH LEV. LOW	The wash tank water level has fallen by more than 20 mm with respect to the permissible min. level (–hysteresis set point level).	Indicates the wash tank level at the time of event recording.
45	PREWASH LEV. LOW	The prewash tank water level has fallen by more than 20 mm with respect to the permissible min. level (–hysteresis set point level).	Indicates the prewash tank level at the time of event recording.
46	POWER ON	Records appliance activation.	Not significant
47	FORCED WASH	A wash start has been forced.	Indicates the boiler temperature at the time of event recording.
48	EMERGENCY SWITCH	The emergency mushroom has been pressed.	Not significant
49	PARAMETER MODE	Parameter mode has been accessed.	Not significant
50	PARAMETER MODIF.	A parameter has been modified.	Indicates the modified family and parameter number.
51	PREW. FILL. TOUT	Alarm number 51 has occurred: The prewash tank was not completely filled within the max. filling time.	Indicates the prewash tank level at the time of event recording.
52	PREW. LEV. FAULT	Alarm number 52 has occurred: The pressure sensor on the prewash tank does not work correctly.	Indicates the prewash tank level at the time of event recording.
53	PREW. HEAT. TOUT	Alarm number 53 has occurred: The required temperature in the prewash tank was not reached within the max. heating time.	Indicates the prewash tank temperature at the time of event recording.
54	PREW. OVERTEMP.	Alarm number 54 has occurred: The water temperature in the prewash tank is too high.	Indicates the prewash tank temperature at the time of event recording.
55	PREW. NTC SHORT	Alarm number 55 has occurred: The prewash tank temperature sensor is short circuited.	Not significant
56	PREW. NTC OPEN	Alarm number 56 has occurred: The prewash tank temperature sensor is open.	Not significant
57	PREW. PUMP THER.	Alarm number 57 has occurred: The prewash pump thermal protector has tripped.	Not significant
58	DRAIN PREW. TOUT	Alarm number 58 has occurred: The prewash tank was not completely emptied within the max. emptying time.	Indicates the prewash tank level at the time of event recording.
60	CU NTC SHORT	The warning number 60 has occurred: The CU temperature sensor is short circuited.	Not significant
61	CU NTC OPEN	The warning number 61 has occurred: The CU temperature sensor is open.	Not significant
62	HEAT PUMP FAULT	The warning number 62 has occurred: Indicates that the heat pump has generated an error.	Not significant
63	CU TEMP. HIGH	The CU temperature has exceeded by 8°C/14°F degrees the permissible max. value to ensure the correct operation of the heat pump.	Indicates the CU temperature at the time of event recording.
64	CU TEMP. LOW	During the wash phase the CU temperature has decreased by more than 10 °C/18 °F with respect to the permissible min. value (–hysteresis temperature set point) to ensure the correct operation of the heat pump.	Indicates the CU temperature at the time of event recording.
65	LEV. LOW WASH	Washing has stopped due to a lowering of the levels	Indicates the air gap level at the time of event recording.
66	RINSE FLOW CTRL	A calibration cycle for the rinse flow shutter has been started.	Whole part and fractional part of the flow measured.
71	DT HEAT. TOUT	Alarm number 71 has occurred: The required temperature in the drying tunnel was not reached within the max. heating time.	Indicates the drying tunnel temperature at the time of event recording.
72	DT OVERTEMP.	Alarm number 72 has occurred: The temperature in the drying tunnel is too high.	Indicates the drying tunnel temperature at the time of event recording.

Event number	Event name	Event description	Event value (VALUE)
73	**DT NTC SHORT**	Alarm number 73 has occurred: (Up to version FW 1.52) The drying tunnel temperature sensor is short circuited.	Not significant
74	**DT NTC OPEN**	Alarm number 74 has occurred: The drying tunnel temperature sensor is open.	Not significant
75	**DT FAN THER.**	Alarm number 75 has occurred: The drying tunnel fan thermal protector has tripped.	Not significant
76	**MOT CURR OOR H.**	Alarm number 76 has occurred: The gear motor supplied current is higher than the maximum value allowed for the gear motor current.	Not significant
77	**MOT CURR OOR L.**	Alarm number 77 has occurred: The gear motor supplied current is lower than the minimum value allowed for the gear motor current.	Not significant
78	**HIGH MOT. CURR.**	Dishes are jammed.: The gear motor supplied current is higher than the value set in the “Max motor curr.” parameter.	Indicates the supplied current to gear motor at the time of event recording.
79	**BOIL. USA T. HI..**	The first boiler temperature has exceeded the temperature set point by 7 °C/13 °F.	Indicates the first boiler temperature at the time of event recording.
80	**BOIL. USA T. LO.**	During the wash phase the first boiler temperature has decreased by more than 12 °C/25 °F with respect to the permissible min. value (– hysteresis temperature set point).	Indicates the first boiler temperature at the time of event recording.
81	**EN. PEAK CTRL.**	The “Energy peak control” input has been activated. All the heating elements of the machine remain off during activation of this input.	Indicates the boiler temperature at the time of event recording.
82	**BOIL. USA TOUT**	Alarm number 82 has occurred: The required temperature was not reached in the first boiler within the max. heating time.	Indicates the first boiler temperature at the time of event recording.
83	**BOIL. USA OVERT.**	Alarm number 83 has occurred: The water temperature in the first boiler is too high	Indicates the first boiler temperature at the time of event recording.
84	**BOIL. USA NTC S.**	Alarm number 84 has occurred: The first boiler temperature sensor is short circuited.	Not significant
85	**BOIL. USA NTC O.**	Alarm number 85 has occurred: The first boiler temperature sensor is open.	Not significant
86	**SEN. PRESS. ADJ**	The pressure sensor setting procedure has been performed.	Not significant
89	**U.I. TEMP. HIGH**	Alarm number 89 has occurred: Temperature too high on User interface.	Indicates the User interface temperature at the time of event recording.
90	**ECAP ERROR**	Alarm number 90 has occurred: Communication problems between machine electronic boards.	Indicates the module that generated a communication error between User interface and Mec: 1: rinse 2: wash 4: prewash 8: DT.

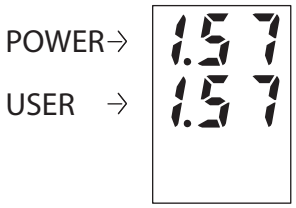
A4.3 INFO

Press the confirm key (“C” - (Figure 1)) when the selection arrow indicates the INFO item and the machine firmware (FW) versions will be displayed.

MODULAR RACK TYPE



COMPACT RACK TYPE



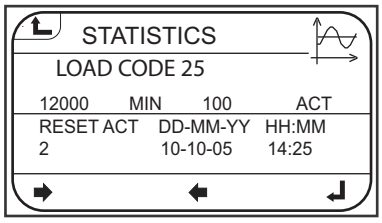
Modular Rack Type will show the USER INTERFACE board software version (FW USER e FW LCD) and the POWER boards software versions (FW RINSE, FW WASH, FW PREWASH, FW DT), Compact Rack Type will show the USER INTERFACE board software version and the POWER board connected to the USER INTERFACE software version.

Press the confirm key to return to the SERVICE MENU.

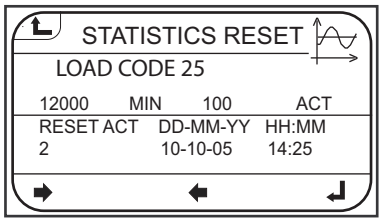
A4.4 STATISTICS (ONLY FOR MODULAR RACK TYPE)

Press the confirm key (“C” - (Figure 1)) when the selection arrow indicates the STATISTICS item and the display will show the statistics relevant to starts and activation times of the first electric user of the machine. The table below describes all the codes (LOAD CODE) of the electric users in the machine. The display shows the minutes of activation and number of starts of the selected electric user starting from the machine installation date.

It also shows the number of starts (RESET ACT) of the selected electric user, counted from the date indicated opposite, which corresponds to the last reset.



In fact the number of starts counter for the selected electric user can be reset, by pressing the confirm key; in this way STATISTICS RESET mode is accessed.



Press the confirm key again to reset the number of starts counter (RESET ACT).

The number of starts counter (RESET ACT) is reset and the date and time are saved.

If the last reset of the resettable counter (RESET ACT) occurred in the factory, the indication FAC appears next to the reset time.

Press the accessory functions key to exit STATISTICS RESET mode.

List of codes (LOAD CODE) of electric users in the machine:

LOAD CODE	Electric user description
1	Air gap filling solenoid valve
2	Wash tank filling solenoid valve
3	Prewash tank filling solenoid valve
4	Boiler heating element
5	DUO heating element
6	Wash tank heating element
7	Wash tank second heating element (for machines with separately controlled tank heating elements only)
8	Prewash tank heating element
9	DT heating element
10	Upper wash pump
11	Lower wash pump
12	Upper prewash pump
13	Lower prewash pump
14	Rinse pump
15	DUO pump
16	CU fan
17	DT fan
18	DUO tank drain solenoid valve
19	Wash tank drain solenoid valve
20	Prewash tank drain solenoid valve
21	Wash pump impeller drain solenoid valve
22	Prewash pump impeller drain solenoid valve
23	Gear motor

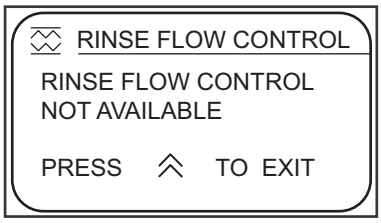
24	Machine infeed motor-driven handling system start command
25	Machine outfeed motor-driven handling system start command
26	Machine infeed motor-driven handling system speed 2 start command
27	Machine infeed motor-driven handling system speed 2 start command
28	Heat Pump
29	Prewash module door opening
30	Wash module door opening
31	Rinse module door opening
32	DT module door opening
33	First boiler heating element

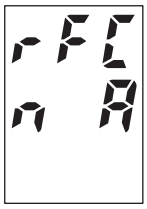
A4.5 RINSE CONTROL (JUST FOR ATMOSPHERIC RACK TYPE)

Press the confirm key (“C” - (Figure 1)) when the selection arrow indicates the item RINSE CONTROL, and the machine is going to start a rinse flow control cycle.

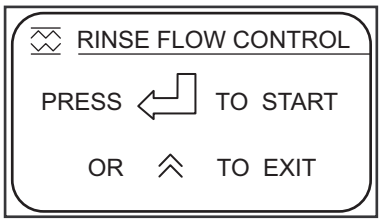
If there is a communication error between the rack type boards, the rinse flow control cycle cannot be carried out.

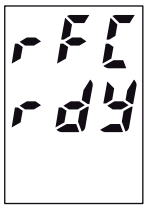
In this case the display will show:



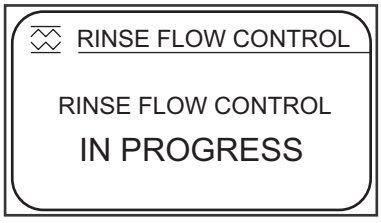


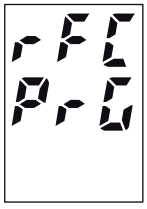
If the communication is working correctly the dispaly informs the user that the machine is ready to start a rinse flow control cycle:



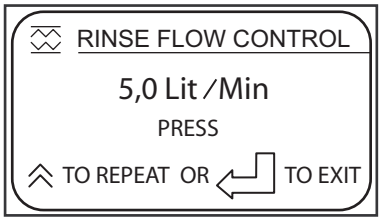


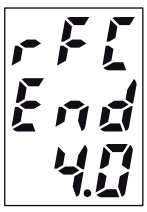
Press the confirm key (“C” - (Figure 1)) and a control cycle is started:





Wait about 2 minutes, until the display will show the actual rinse flow:





Compare the result obtained with the data given in the table below and if the flow is higher or lower than that indicated in the table, close or open the rinse flow regulating cock and repeat the control cycle until the optimum value is reached.

MACHINE TYPE	CORRECT FLOW (Lit/Min)
WTM140	4.00 (5.00 with heat pump)
WTM165	5.00
WTM180	5.00
WTM200	5.00
WTM250	5.00
WTM300	5.00
RTC 90	4.00
RTC140	4.00
RTC180	4.00
RTC220	5.00
WT44	5.00
WT66	5.00

CAUTION:

The Rack Type leaves the factory with the cock already adjusted in the optimum position.

CAUTION:

The indication of rinse flowrate can be subject to an error of ± 0,3 litres/min.

A4.6 KEY MANAGEMENT (JUST FOR MODULAR RACK TYPE)

Not available yet.

A4.7 SENSOR ADJUSTMENT

Press the “Confirm” button - “C” (Figure 1) - when the selection arrow indicates the item SENS. ADJUST. (Modular RT's) or when the item SAd (Compact RT's) is displayed, to access the procedure for setting the machine pressure sensors.

The pressure sensors are fitted inside the electronic boards and read the levels of the Duo Rinse tank, wash tank, prewash tank and Airgap. It is advisable to carry out this procedure when replacing one of the following boards:

1 - Air gap level sensor card (Atmospheric RT's)
2 - Prewash module power board (Modular RT's)
2 - Wash module power board (Modular RT's)
4 - Rinse module power board (Modular RT's)
5 - Wash+Rinse module power board (Compact RT's)

CAUTION:

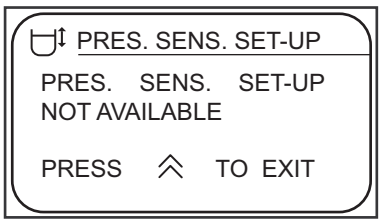
All the tanks and the airgap must be completely emptied before carrying out the pressure sensor setting procedure.

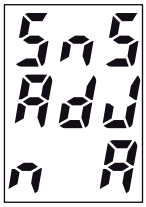
CAUTION:

The Rack Type leaves the factory with the pressure sensors already set to the optimum value.

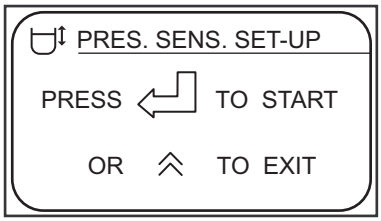
Pressure sensor setting cannot be carried out if an error in communication between the Rack Type boards is in progress.

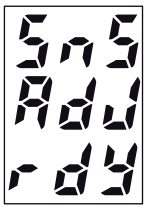
In this case the display will show:



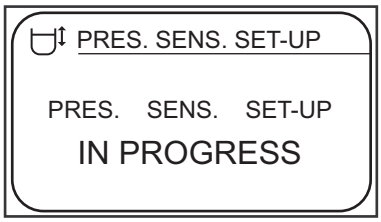


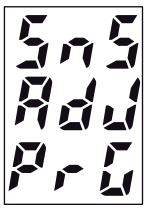
If the communication is working correctly the dispaly informs the user that the machine is ready for carrying out pressure sensor setting.



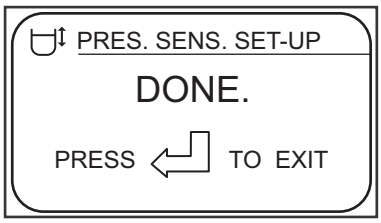


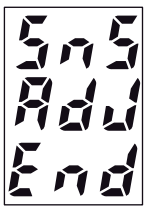
Press the confirm key - “C” (Figure 1) - and the setting cycle is started:



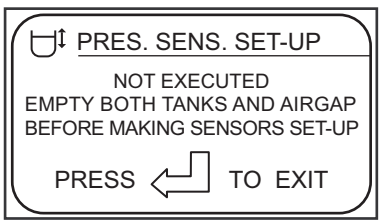


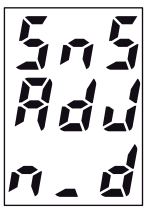
Wait about 5 seconds, until the display will show:





If the pressure sensor setting procedure is sterted without having previously emptied the tanks and air gap, the following message appears:





B PROGRAMMING SHEETS

When installing a new user interface card in the equipment it must be configured according to the machine in which it is being installed.

CAUTION:

The parameters that must be configured are installation day, month and year (see par. A4.1.8 RATING PLATE (ONLY FOR MODULAR RACK TYPE)), all the specific configuration parameters of each equipment family (see par. B1.1 MODULAR RACK TYPE) and the configuration parameters of the "specific functions" (refer to par. B2 "SPECIFIC FUNCTIONS").

FactoryCode	Factory Model	Prog	FactoryCode	Factory Model	Prog
534020	WTC90ERBG	013	534071	WT44BR208	029
534021	WTC90ELBG	013	534072	WT44BL240	029
534022	WTC140ERAG	017	534073	WT44BR240	029
534023	WTC140ELAG	017	534074	WT44CL208	029
534024	WTC140ERBG	017	534075	WT44CR208	029
534025	WTC140ELBG	017	534076	WT44CL240	029
534026	WTC180ERAG	021	534077	WT44CR240	029
534027	WTC180ELAG	021	534090	WT66BL208	030
534028	WTC180ERBG	021	534091	WT66BR208	030
534029	WTC180ELBG	021	534092	WT66BL240	030
534030	WTC220ERAG	025	534093	WT66BR240	030
534031	WTC220ELAG	025	534094	WT66CL208	030
534032	WTC220ERBG	025	534095	WT66CR208	030
534033	WTC220ELBG	025	534096	WT66CL240	030
534070	WT44BL208	029	534097	WT66CR240	030

Table 1 Machine codes list and relative programming sheets

B1 CONFIGURATION PARAMETERS

B1.1 MODULAR RACK TYPE

Prog 1 WTM140		**Rinse 600 & Was 1165 (without DT)**	
GENERIC FUNC.		Enter GENERIC FUNC. and set the following parameters.	
	Set default par.	Yes	It allows all the parameters to be set to their default value.
		Switch the machine off and then on again.	
GENERIC FUNC.		Enter GENERIC FUNC. and set the following parameters.	
	Appl. type	Ri Ws	Machine type.
	Appl. direct.	Left/Right	Rack pulling direction. Left: left rack insertion. Right: right rack insertion.
	Speed nr. 1	25	Indicates gear motor operation frequency at speed 1 [Hz].
	Wash time sp 1	85	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
	Speed nr. 2	45	Indicates gear motor operation frequency at speed 2 [Hz].
	Wash time sp 2	50	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
	Drain enable	61	Enabling of drain and cleaning cycles.
	Heat two comm.	No	Wash tank heating element management mode.

	Heating manage	HIGH	Machine heating power management.
	Boiler load tank	No	
	Rinse autostart	Software	Up to serial number 71800000
		Mechanical	From serial number 71800001
	Max motor curr.	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
RINSE MODULE		Enter RINSE MODULE and set the following parameters.	
	Drain delay air-gap	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
WASH MODULE		Enter WASH MODULE and set the following parameters.	
	Wash module	1165	Type of wash module.
		Switch the machine off and then on again.	

Prog 2 WTM165	**Rinse 600 & Wash 1490 (without DT)**	
GENERIC FUNC.	Enter GENERIC FUNC. and set the following parameters.	
Set default par.	Yes	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GENERIC FUNC.	Enter GENERIC FUNC. and set the following parameters.	
Appl. type	Ri Ws	Machine type.
Appl. direct.	Left/Right	Rack pulling direction. Left: left rack insertion. Right: right rack insertion.
Speed nr. 1	27	Indicates gear motor operation frequency at speed 1 [Hz].
Wash time sp 1	110	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
Speed nr. 2	51	Indicates gear motor operation frequency at speed 2 [Hz].
Wash time sp 2	58	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
Drain enable	61	Enabling of drain and cleaning cycles.
Heat two comm.	Yes	Wash tank heating element management mode.
Heating manage	MEDIUM	Machine heating power management.
Boiler load tank	No	
Rinse autostart	Software	Up to serial number 71800000
	Mechanical	From serial number 71800001
Max motor curr.	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
RINSE MODULE	Enter RINSE MODULE and set the following parameters.	
Drain delay air-gap	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
WASH MODULE	Enter WASH MODULE and set the following parameters.	
Wash module	1490	Type of wash module.
	Switch the machine off and then on again.	

Prog 3 WTM180		Rinse 600 & Wash 1165 & Prewash 600 (without DT)	
GENERIC FUNC.		Enter GENERIC FUNC. and set the following parameters.	
	Set default par.	Yes	It allows all the parameters to be set to their default value.
		Switch the machine off and then on again.	
GENERIC FUNC.		Enter GENERIC FUNC. and set the following parameters.	
	Appl. type	Ri Ws Pw	Machine type.
	Appl. direct.	Left/Right	Rack pulling direction. Left: left rack insertion. Right: right rack insertion.
	Speed nr. 1	35	Indicates gear motor operation frequency at speed 1 [Hz].
	Wash time sp 1	108	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
	Speed nr. 2	58	Indicates gear motor operation frequency at speed 2 [Hz].
	Wash time sp 2	59	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
	Drain enable	63	Enabling of drain and cleaning cycles.
	Heat two comm.	No	Wash tank heating element management mode.
	Heating manage	HIGH	Machine heating power management.
	Boiler load tank	No	
	Rinse autostart	Software	Up to serial number 71800000
		Mechanical	From serial number 71800001
	Max motor curr.	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
RINSE MODULE		Enter RINSE MODULE and set the following parameters.	
	Drain delay air-gap	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
WASH MODULE		Enter WASH MODULE and set the following parameters.	
	Wash module	1165	Type of wash module.
PREWASH MODULE		Enter WASH MODULE and set the following parameters.	
	Prewash module	1165-600	Type of wash module.
	Standby level	220	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
	Run level	180	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
		Switch the machine off and then on again.	

Prog 4 WTM200	Rinse 600 & Wash 1490 & Prewash 600 (without DT)	
GENERIC FUNC.	Enter GENERIC FUNC. and set the following parameters.	
Set default par.	Yes	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GENERIC FUNC.	Enter GENERIC FUNC. and set the following parameters.	
Appl. type	Ri Ws Pw	Machine type.
Appl. direct.	Left/Right	Rack pulling direction. Left: left rack insertion. Right: right rack insertion.
Speed nr. 1	40	Indicates gear motor operation frequency at speed 1 [Hz].
Wash time sp 1	105	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
Speed nr. 2	63	Indicates gear motor operation frequency at speed 2 [Hz].
Wash time sp 2	65	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
Drain enable	63	Enabling of drain and cleaning cycles.
Heat two comm.	Yes	Wash tank heating element management mode.
Heating manage	MEDIUM	Machine heating power management.
Boiler load tank	No	
Rinse autostart	Software	Up to serial number 71800000
	Mechanical	From serial number 71800001
Max motor curr.	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
RINSE MODULE	Enter RINSE MODULE and set the following parameters.	
Drain delay air-gap	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
WASH MODULE	Enter WASH MODULE and set the following parameters.	
Wash module	1490	Type of wash module.
PREWASH MODULE	Enter WASH MODULE and set the following parameters.	

Prewash module	1165-600	Type of wash module.
Standby level	220	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
Run level	180	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
	Switch the machine off and then on again.	

Prog 5 WTM250		Rinse 600 & Wash 1490 & Prewash 1165 (without DT)	
GENERIC FUNC.		Enter GENERIC FUNC. and set the following parameters.	
	Set default par.	Yes	It allows all the parameters to be set to their default value.
		Switch the machine off and then on again.	
GENERIC FUNC.		Enter GENERIC FUNC. and set the following parameters.	
	Appl. type	Ri Ws Pw	Machine type.
	Appl. direct.	Left/Right	Rack pulling direction. Left: left rack insertion. Right: right rack insertion.
	Speed nr. 1	53	Indicates gear motor operation frequency at speed 1 [Hz].
	Wash time sp 1	99	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
	Speed nr. 2	83	Indicates gear motor operation frequency at speed 2 [Hz].
	Wash time sp 2	65	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
	Drain enable	63	Enabling of drain and cleaning cycles.
	Heat two comm.	No	Wash tank heating element management mode.
	Heating manage	HIGH	Machine heating power management.
	Boiler load tank	No	
	Rinse autostart	Software	Up to serial number 71800000
		Mechanical	From serial number 71800001
	Max motor curr.	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
RINSE MODULE		Enter RINSE MODULE and set the following parameters.	
	Drain delay air-gap	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
WASH MODULE		Enter WASH MODULE and set the following parameters.	
	Wash module	1490	Type of wash module.
PREWASH MODULE		Enter WASH MODULE and set the following parameters.	
	Prewash module	1165-600	Type of wash module.
	Standby level	205	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
	Run level	170	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
		Switch the machine off and then on again.	

Prog 6 WTM300		Rinse 600 & Wash 1490 & Prewash 1490 (without DT)	
GENERIC FUNC.		Enter GENERIC FUNC. and set the following parameters.	
	Set default par.	Yes	It allows all the parameters to be set to their default value.
		Switch the machine off and then on again.	
GENERIC FUNC.		Enter GENERIC FUNC. and set the following parameters.	
	Appl. type	Ri Ws Pw	Machine type.
	Appl. direct.	Left/Right	Rack pulling direction. Left: left rack insertion. Right: right rack insertion.
	Speed nr. 1	60	Indicates gear motor operation frequency at speed 1 [Hz].

	Wash time sp 1	100	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
	Speed nr. 2	100	Indicates gear motor operation frequency at speed 2 [Hz].
	Wash time sp 2	60	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
	Drain enable	63	Enabling of drain and cleaning cycles.
	Heat two comm.	No	Wash tank heating element management mode.
	Heating manage	HIGH	Machine heating power management.
	Boiler load tank	No	
	Rinse autostart	Software	Up to serial number 71800000
		Mechanical	From serial number 71800001
	Max motor curr.	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
RINSE MODULE		Enter RINSE MODULE and set the following parameters.	
	Drain delay air-gap	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
WASH MODULE		Enter WASH MODULE and set the following parameters.	
	Wash module	1490	Type of wash module.
PREWASH MODULE		Enter WASH MODULE and set the following parameters.	
	Prewash module	1490	Type of wash module.
	Standby level	205	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
	Run level	170	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
		Switch the machine off and then on again.	

Prog 7 WTM140	**Rinse 600 & Wash 1165 (DT)**	
GENERIC FUNC.	Enter GENERIC FUNC. and set the following parameters.	
Set default par.	Yes	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GENERIC FUNC.	Enter GENERIC FUNC. and set the following parameters.	
Appl. type	Ri Ws Dt	Machine type.
Appl. direct.	Left/Right	Rack pulling direction. Left: left rack insertion. Right: right rack insertion.
Speed nr. 1	25	Indicates gear motor operation frequency at speed 1 [Hz].
Wash time sp 1	85	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
Speed nr. 2	45	Indicates gear motor operation frequency at speed 2 [Hz].
Wash time sp 2	50	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
Drain enable	61	Enabling of drain and cleaning cycles.
Heat two comm.	No	Wash tank heating element management mode.

	Heating manage	HIGH	Machine heating power management.
	Boiler load tank	No	
	Rinse autostart	Software	Up to serial number 71800000
		Mechanical	From serial number 71800001
	Max motor curr.	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
RINSE MODULE		Enter RINSE MODULE and set the following parameters.	
	Drain delay air-gap	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
WASH MODULE		Enter WASH MODULE and set the following parameters.	
	Wash module	1165	Type of wash module.
		Switch the machine off and then on again.	

Prog 8 WTM165 — Rinse 600 & Wash 1490 (DT)

GENERIC FUNC.		Enter GENERIC FUNC. and set the following parameters.	
	Set default par.	Yes	It allows all the parameters to be set to their default value.
		Switch the machine off and then on again.	
GENERIC FUNC.		Enter GENERIC FUNC. and set the following parameters.	
	Appl. type	Ri Ws Dt	Machine type.
	Appl. direct.	Left/ Right	Rack pulling direction. Left: left rack insertion. Right: right rack insertion.
	Speed nr. 1	27	Indicates gear motor operation frequency at speed 1 [Hz].
	Wash time sp 1	110	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
	Speed nr. 2	51	Indicates gear motor operation frequency at speed 2 [Hz].
	Wash time sp 2	58	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
	Drain enable	61	Enabling of drain and cleaning cycles.
	Heat two comm.	YES	Wash tank heating element management mode.
	Heating manage	MEDIUM	Machine heating power management.
	Boiler load tank	No	
	Rinse autostart	Software	Up to serial number 71800000
		Mechani-cal	From serial number 71800001
	Max motor curr.	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
RINSE MODULE		Enter RINSE MODULE and set the following parameters.	
	Drain delay air-gap	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
WASH MODULE		Enter WASH MODULE and set the following parameters.	
	Wash module	1490	Type of wash module.
		Switch the machine off and then on again.	

Prog 9 WTM180	Rinse 600 & Wash 1165 & Prewash 600 (DT)	
GENERIC FUNC.	Enter GENERIC FUNC. and set the following parameters.	
Set default par.	Yes	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GENERIC FUNC.	Enter GENERIC FUNC. and set the following parameters.	
Appl. type	Ri Ws Pw Dt	Machine type.
Appl. direct.	Left/Right	Rack pulling direction. Left: left rack insertion. Right: right rack insertion.
Speed nr. 1	35	Indicates gear motor operation frequency at speed 1 [Hz].
Wash time sp 1	108	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
Speed nr. 2	58	Indicates gear motor operation frequency at speed 2 [Hz].
Wash time sp 2	59	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
Drain enable	63	Enabling of drain and cleaning cycles.
Heat two comm.	No	Wash tank heating element management mode.
Heating manage	HIGH	Machine heating power management.
Boiler load tank	No	
Rinse autostart	Software	Up to serial number 71800000
	Mechanical	From serial number 71800001
Max motor curr.	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
RINSE MODULE	Enter RINSE MODULE and set the following parameters.	
Drain delay air-gap	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
WASH MODULE	Enter WASH MODULE and set the following parameters.	
Wash module	1165	Type of wash module.
PREWASH MODULE	Enter WASH MODULE and set the following parameters.	
Prewash module	1165-600	Type of wash module.
Standby level	205	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
Run level	170	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
	Switch the machine off and then on again.	

Prog 10 WTM200		Rinse 600 & Wash 1490 & Prewash 600 (DT)	
GENERIC FUNC.		Enter GENERIC FUNC. and set the following parameters.	
	Set default par.	Yes	It allows all the parameters to be set to their default value.
		Switch the machine off and then on again.	
GENERIC FUNC.		Enter GENERIC FUNC. and set the following parameters.	
	Appl. type	Ri Ws Pw Dt	Machine type.
	Appl. direct.	Left/Right	Rack pulling direction. Left: left rack insertion. Right: right rack insertion.
	Speed nr. 1	40	Indicates gear motor operation frequency at speed 1 [Hz].
	Wash time sp 1	105	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
	Speed nr. 2	63	Indicates gear motor operation frequency at speed 2 [Hz].
	Wash time sp 2	65	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
	Drain enable	63	Enabling of drain and cleaning cycles.
	Heat two comm.	Yes	Wash tank heating element management mode.
	Heating manage	MEDIUM	Machine heating power management.
	Boiler load tank	No	
	Rinse autostart	Software	Up to serial number 71800000
		Mechanical	From serial number 71800001
	Max motor curr.	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
RINSE MODULE		Enter RINSE MODULE and set the following parameters.	
	Drain delay air-gap	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
WASH MODULE		Enter WASH MODULE and set the following parameters.	
	Wash module	1490	Type of wash module.
PREWASH MODULE		Enter WASH MODULE and set the following parameters.	
	Prewash module	1165-600	Type of wash module.
	Standby level	220	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
	Run level	180	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
		Switch the machine off and then on again.	

Prog 11 WTM250		Rinse 600 & Wash 1490 & Prewash 1165 (DT)	
GENERIC FUNC.		Enter GENERIC FUNC. and set the following parameters.	
	Set default par.	Yes	It allows all the parameters to be set to their default value.
		Switch the machine off and then on again.	
GENERIC FUNC		Enter GENERIC FUNC. and set the following parameters.	
	Appl. type	Ri Ws Pw Dt	Machine type.
	Appl. direct.	Left/Right	Rack pulling direction. Left: left rack insertion. Right: right rack insertion.
	Speed nr. 1	53	Indicates gear motor operation frequency at speed 1 [Hz].
	Wash time sp 1	99	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
	Speed nr. 2	83	Indicates gear motor operation frequency at speed 2 [Hz].
	Wash time sp 2	65	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
	Drain enable	63	Enabling of drain and cleaning cycles.
	Heat two comm.	No	Wash tank heating element management mode.
	Heating manage	HIGH	Machine heating power management.
	Boiler load tank	No	
	Rinse autostart	Software	Up to serial number 71800000
		Mechanical	From serial number 71800001
	Max motor curr.	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
RINSE MODULE		Enter RINSE MODULE and set the following parameters.	
	Drain delay air-gap	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.

WASH MODULE		Enter WASH MODULE and set the following parameters.	
	Wash module	1490	Type of wash module.
PREWASH MODULE		Enter WASH MODULE and set the following parameters.	
	Prewash module	1165-600	Type of wash module.
	Standby level	205	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
	Run level	170	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
		Switch the machine off and then on again.	

Prog 12 WTM300	Rinse 600 & Wash 1490 & Prewash 1490 (DT)	
GENERIC FUNC.	Enter GENERIC FUNC. and set the following parameters.	
Set default par.	Yes	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GENERIC FUNC	Enter GENERIC FUNC. and set the following parameters.	
Appl. type	Ri Ws Pw Dt	Machine type.
Appl. direct.	Left/Right	Rack pulling direction. Left: left rack insertion. Right: right rack insertion.
Speed nr. 1	60	Indicates gear motor operation frequency at speed 1 [Hz].
Wash time sp 1	100	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
Speed nr. 2	100	Indicates gear motor operation frequency at speed 2 [Hz].
Wash time sp 2	60	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
Drain enable	63	Enabling of drain and cleaning cycles.
Heat two comm.	No	Wash tank heating element management mode.
Heating manage	HIGH	Machine heating power management.
Boiler load tank	No	
Rinse autostart	Software	Up to serial number 71800000
	Mechanical	From serial number 71800001
Max motor curr.	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
RINSE MODULE	Enter RINSE MODULE and set the following parameters.	
Drain delay air-gap	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
WASH MODULE	Enter WASH MODULE and set the following parameters.	
Wash module	1490	Type of wash module.
PREWASH MODULE	Enter WASH MODULE and set the following parameters.	
Prewash module	1490	Type of wash module.
Standby level	205	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
Run level	170	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
	Switch the machine off and then on again.	

B1.2 COMPACT RACK TYPE

Prog 13 RTC90 / CTC90 / WTC90 Wash + Rinse from 1165 (atmospheric circuit without DT)		
GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	5	Machine type.
SP1	27	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	55	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	27	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	55	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	53	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
ttY	2	Type of wash module.
	Switch the machine off and then on again.	

Prog 14 RTC90 / CTC90 / WTC90 Wash + Rinse from 1165 (atmospheric circuit with DT)		
GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	7	Machine type.
SP1	27	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	55	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	27	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	55	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	53	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.

bEF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
ttY	2	Type of wash module.
	Switch the machine off and then on again.	

Prog 15 RTC90 / CTC90 / WTC90 Wash + Rinse from 1165 (pressure circuit without DT)

GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	4	Machine type.
SP1	27	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	55	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	27	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	55	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	37	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
bEF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
ttY	2	Type of wash module.
	Switch the machine off and then on again.	

Prog 16 RTC90 / CTC90 / WTC90
Wash + Rinse from 1165 (pressure circuit with DT)

GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	6	Machine type.
SP1	27	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	55	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	27	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	55	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	37	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
tty	2	Type of wash module.
	Switch the machine off and then on again.	

Prog 17 RTC140 / CTC140 / WTC140
Wash + Rinse from 1490 (atmospheric circuit without DT)

GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	5	Machine type.
SP1	25	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	80	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	45	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	40	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	53	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.

r in	Enter RINSE MODULE and set the following parameters.	
Add	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
tty	2	Type of wash module.
	Switch the machine off and then on again.	

Prog 18 RTC140 / CTC140 / WTC140 Wash + Rinse from 1490 (atmospheric circuit with DT)

GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	7	Machine type.
SP1	25	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	80	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	45	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	40	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	53	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
tty	2	Type of wash module.
	Switch the machine off and then on again.	

Prog 19 RTC140 / CTC140 / WTC140 Wash + Rinse from 1490 (pressure circuit without DT)

GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	4	Machine type.
SP1	25	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	80	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	45	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	40	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	37	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
tty	2	Type of wash module.
	Switch the machine off and then on again.	

Prog 20 RTC140 / CTC140 / WTC140 Wash + Rinse from 1490 (pressure circuit with DT)

GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	6	Machine type.
SP1	25	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	80	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	45	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	40	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	37	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.

rin	Enter RINSE MODULE and set the following parameters.	
Add	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
tty	2	Type of wash module.
	Switch the machine off and then on again.	

Prog 21 RTC180 / CTC180 / WTC180 Wash + Rinse from 1165 & Prewash from 600 (atmospheric circuit without DT)

GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	9	Machine type.
SP1	35	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	08	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	50	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	40	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	55	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
rin	Enter RINSE MODULE and set the following parameters.	
Add	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
tty	2	Type of wash module.
PrE	Enter PrE and set the following parameters.	
Pty	0	Type of prewash module.
Sb1	220	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
PSS	180	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
	Switch the machine off and then on again.	

Prog 22 RTC180 / CTC180 / WTC180 Wash + Rinse from 1165 & Prewash from 600 (atmospheric circuit with DT)

GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	11	Machine type.
SP1	35	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	88	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	50	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	48	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	55	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
tty	2	Type of wash module.
PrE	Enter PrE and set the following parameters.	
Pty	0	Type of prewash module.
Sb1	220	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
PSS	180	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
	Switch the machine off and then on again.	

Prog 23 RTC180 / CTC180 / WTC180 Wash + Rinse from 1165 & Prewash from 600 (pressure circuit without DT)

GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	8	Machine type.
SP1	35	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	88	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.

SP2	50	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	40	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	39	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
tty	2	Type of wash module.
PrE	Enter PrE and set the following parameters.	
Pty	0	Type of prewash module.
Sb1	220	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
PSS	180	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
	Switch the machine off and then on again.	

Prog 24 RTC180 / CTC180 / WTC180 Wash + Rinse from 1165 & Prewash from 600 (pressure circuit with DT)

GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	10	Machine type.
SP1	35	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	80	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	50	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	40	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	39	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	40	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
tty	2	Type of wash module.

PrE	Enter PrE and set the following parameters.	
PtY	0	Type of prewash module.
Sb1	220	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
PSS	180	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
	Switch the machine off and then on again.	

Prog 25 RTC220 / CTC220 / WTC220 Wash + Rinse from 1165 & Prewash from 1165 (atmospheric circuit without DT)

GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	9	Machine type.
SP1	57	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	73	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	69	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	57	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	55	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
ttY	2	Type of wash module.
PrE	Enter PrE and set the following parameters.	
PtY	0	Type of prewash module.
Sb1	205	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
PSS	170	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
	Switch the machine off and then on again.	

Prog 26 RTC220 / CTC220 / WTC220 Wash + Rinse from 1165 & Prewash from 1165 (atmospheric circuit with DT)		
GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	11	Machine type.
SP1	57	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	73	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	69	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	57	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	55	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
tty	2	Type of wash module.
PrE	Enter PrE and set the following parameters.	
Pty	0	Type of prewash module.
Sb1	205	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
PSS	170	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
	Switch the machine off and then on again.	

Prog 27 RTC220 / CTC220 / WTC220 Wash + Rinse from 1165 & Prewash from 1165 (pressure circuit without DT)		
GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	

APt	8	Machine type.
SP1	57	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	73	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	69	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	57	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	39	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
tty	2	Type of wash module.
PrE	Enter PrE and set the following parameters.	
Pty	0	Type of prewash module.
Sb1	205	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
P55	170	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
	Switch the machine off and then on again.	

Prog 28 RTC220 / CTC220 / WTC220 Wash + Rinse from 1165 & Prewash from 1165 (pressure circuit with DT)

GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	10	Machine type.
SP1	57	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	73	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	69	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	57	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	39	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	1	Wash tank filling mode.
r_A	0	Indicates the type of command for the start of the rinse phase.

CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
rin	Enter RINSE MODULE and set the following parameters.	
Add	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
tty	2	Type of wash module.
PrE	Enter PrE and set the following parameters.	
Pty	0	Type of prewash module.
Sb1	205	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
P55	170	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
	Switch the machine off and then on again.	

B1.3 COMPACT RACK TYPE USA

Prog 29 WT44 Wash + Rinse from 44” (atmospheric circuit without DT)		
GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	12	Machine type.
SP1	31	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	44	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	63	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	22	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	53	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.
btF	0	Wash tank filling mode.
CF	1	The temperature is displayed in degrees Fahrenheit.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
ttY	2	Type of wash module.
tut	78	Tank temperature set point.
ttH	0	Hysteresis temperature relative to tank temperature set point.
	Switch the machine off and then on again.	

Prog 30 WT66 Wash + Rinse from 44” & Prewash from 22” (atmospheric circuit without DT)		
GFu	Enter GFu and set the following parameters.	
SdP	1	It allows all the parameters to be set to their default value.
	Switch the machine off and then on again.	
GFu	Enter GFu and set the following parameters.	
APt	14	Machine type.
SP1	31	Indicates gear motor operation frequency at speed 1 [Hz].
rd1	85	Time between insertion of rack and start of rinse phase when speed 1 [s] is set.
SP2	63	Indicates gear motor operation frequency at speed 2 [Hz].
rd2	42	Time between insertion of rack and start of rinse phase when speed 2 [s] is set.
drE	55	Enabling of drain and cleaning cycles.
H2C	0	Wash tank heating element management mode.
b_t	0	Machine heating power management.

bEF	0	Wash tank filling mode.
CF	1	The temperature is displayed in degrees Fahrenheit.
r_A	0	Indicates the type of command for the start of the rinse phase.
CCu	See Par. B2.3	Indicates the maximum current supplied from the inverter to the gear motor.
r in	Enter RINSE MODULE and set the following parameters.	
Add	32	Time between reaching level “0” (air trap level) in the air gap and stop of rinse pump.
tub	Enter tub and set the following parameters.	
tty	2	Type of wash module.
tut	78	Tank temperature set point.
ttH	0	Hysteresis temperature relative to tank temperature set point.
PrE	Enter PrE and set the following parameters.	
Pty	0	Type of prewash module.
Sb1	220	Indicates the maximum level in the prewash tank. The filling stops when the water level reaches this value.
P55	180	The value for the maximum level is modified from “Standby level” to “Run level” during prewashing phase in order to avoid water loss whan the pumps stop.
	Switch the machine off and then on again.	

B2 SPECIFIC FUNCTIONS

B2.1 SETTING UNIT OF MEASURE IN FAHRENHEIT

The machines (apart from Usa Compact machines) leave the factory with the unit of measure used for displaying temperatures in degrees Celsius (**Fahrenheit vis.** = No only for Modular Rack Type and CF: 0 only for Compact Rack Type).

To set the unit of measure used for displaying temperatures in degrees Fahrenheit, enter in GENERIC FUNC. and set the **Fahrenheit vis.** parameter = Yes (only for Modular Rack Type) or enter in GFu and set the CF parameter to 1 (only for Compact Rack Type).

B2.2 LANGUAGE SETTING

The factory-set language on modular machines is English. Set the required language using the “LANGUAGE” parameter in the “USER SETTINGS” family.

B2.3 “MAX. MOTOR CURR.” PARAMETER (CCU) SETTING

1. Wait until the machine, complete with tables, is ready for a wash cycle.
2. Start a wash cycle and read the current absorbed by the gear motor
   (refer to par. A1 “DISPLAY OF AUXILIARY VALUES”).
3. Add 2 to the read value (e.g. if “Motor current” = 34 ---> 34+2=36 decA).
4. Set the “Max. motor curr.” parameter with the value thus obtained.

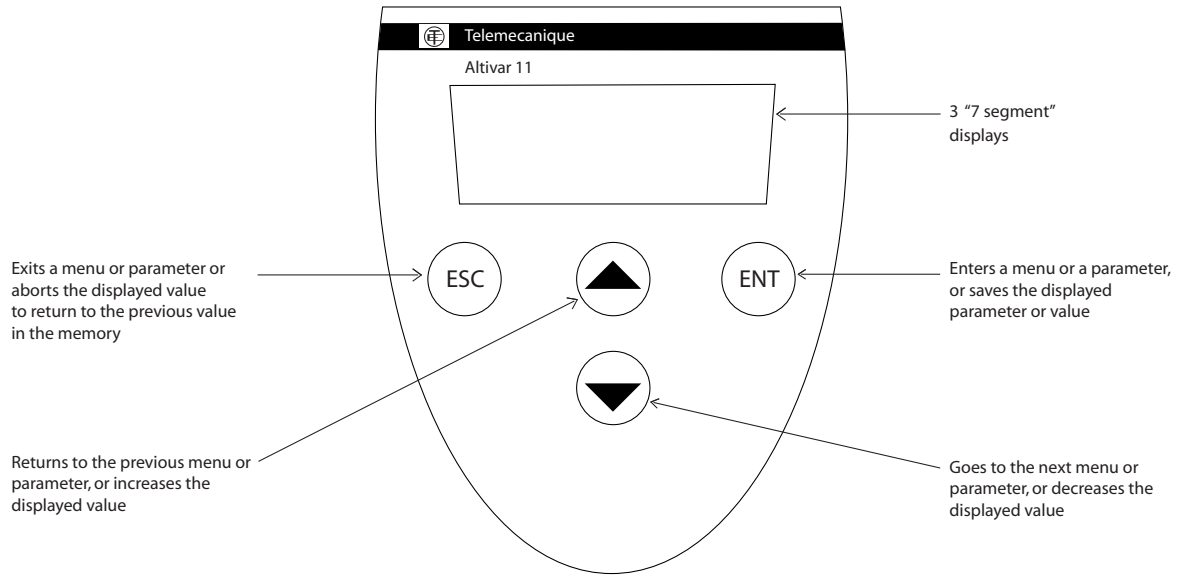
CAUTION:

The Rack Type leaves the factory with the “Max motor curr.” parameter already set to the optimum value. Reset it only when replacing a PCB or the gear motor.

C INVERTER PARAMETERS

C1 INVERTER PROGRAMMING

C1.1 DISPLAY FUNCTIONS



⚠ Pressing ▲ or ▼ does not store the selection.

Save the selection: ENT

The display flashes when a value is stored.

C1.2 INVERTER PARAMETER LISTS

Telemecanique speed drive Altivar 11 type ATV11PU12M2E380

Parameters for 110Vac gearmotor (Delta connection)

Parameter			Description	Standard machine
ACC			Acceleration ramp time	3.0
dEC			Deceleration ramp time	0.5
LSP			Low speed	0.0
HSP			High speed	100
ItH			Motor thermal current	3.6
SP2			2nd preset speed	10
SP3			3rd preset speed	25
SP4			4th preset speed	50
Alt	Act		Scale of analog input	10U

drC	UnS		Nominal motor voltage	110
	FrS		Nominal motor frequency	50
	StA		Frequency loop stability	20
	FLG		Frequency loop gain	50
	UFr		Ir compensation	50
	nCr		Nominal motor current	3.6
	CLI		Current limit	3.9
	nSL		Nominal motor slip	5
	SLP		Slip compensation	100
	COS		Nominal motor cosine	0.65
FUn	tCC	ACt	Type of control	2C
		tCt	Type of two wire control	Lel
	rrS		Reverse	nO
	Ps2	LIA	Preset speed lia	nO
		LIB	Preset speed lib	nO
	HSP	LIA	Config. input Lia	nO
		LIB	Config. input Lib	nO
	tLS			0.0
	PI	PIF		nO
	LOC		Overload threshold	90
	tOL		Time delay for overl. func.	0
	API		Histeresis freq. reached	0.3
	LUL		Underload threshold	60
	tUL		Time delay for underl. func.	10
	rSF		Fault reset	nO
	rP2	LI	Second ramp	nO
	LC2	LI	2nd limit current	nO
	nST		Freewheel stop	nO
	StP		Controlled stop on loss of line supply	FST
	brA		Deceleration ramp adaptation	YES
	AdC	ACt	Automatic dc injection	YES
		tdC	Injection time on stopping	0.5
		SdC	Injection current	2.9
	SfT	ACt	Frequency range	LF
		Sfr	Switching frequency	4
	FLr		Catch on the fly	nO
	dO	ACt	Analogic output do	OCr
	Atr		Automatic restart	nO
	bFr		Motor frequency	50
	SCS		Configuration backup	nO
	FCS		Reminder of the configuration	nO

Telemecanique speed drive Altivar 11 type ATV11PU12M2E380
Parameters for 230Vac gearmotor (Delta connection)

Parameter			Description	Standard machine
ACC			Acceleration ramp time	3.0
dEC			Deceleration ramp time	0.5
LSP			Low speed	0.0
HSP			High speed	100
ItH			Motor thermal current	1.7
SP2			2nd preset speed	10
SP3			3rd preset speed	25
SP4			4th preset speed	50
Alt	Act		Scale of analog input	10U
drC	UnS		Nominal motor voltage	230
	FrS		Nominal motor frequency	50
	StA		Frequency loop stability	20
	FLG		Frequency loop gain	50
	UFr		Ir compensation	50
	nCr		Nominal motor current	1.7
	CLI		Current limit	3.1
	nSL		Nominal motor slip	2
	SLP		Slip compensation	100
	COS		Nominal motor cosine	0.65
FUn	tCC	ACt	Type of control	2C
		tCt	Type of two wire control	LEL
	rrS		Reverse	nO
	Ps2	LIA	Preset speed lia	nO
		LIB	Preset speed lib	nO
	HSP	LIA	Config. input Lia	nO
		LIB	Config. input Lib	nO
	tLS			0.0
	PI	PIF		nO
	LOC		Overload threshold	90
	tOL		Time delay for overl. func.	0
	API		Histeresis freq. reached	0.3
	LUL		Underload threshold	60
	tUL		Time delay for underl. func.	0
	rSF		Fault reset	nO
	rP2	LI	Second ramp	nO
	LC2	LI	2nd limit current	nO
	nST		Freewheel stop	nO
	StP		Controlled stop on loss of line supply	FST
	brA		Deceleration ramp adaptation	YES

	AdC	ACt	Automatic dc injection	YES
		tdC	Injection time on stopping	0.5
		SdC	Injection current	1.4
	SfT	ACt	Frequency range	Lf
		Sfr	Switching frequency	4
	FLr		Catch on the fly	nO
	dO	ACt	Analogic output do	FtA
	Atr		Automatic restart	nO
	bFr		Motor frequency	50
	SCS		Configuration backup	nO
	FCS		Reminder of the configuration	nO

D WARNING MESSAGES AND TROUBLESHOOTING

List of possible documented machine alarms:

CODE	DESCRIPTION	POSSIBLE CAUSE
11	The Air Gap was not completely filled within the max. filling time.	- The air gap water supply cock is not open. - The water filling solenoid valve doesn't work properly. - The water feed flow is too low. - The water inlet filter is not clean. - The boiler pressure sensor doesn't work properly.
12	The pressure sensor on the air gap does not work correctly.	- The pressure sensor on the air gap doesn't work properly. - The pressure sensor connector on the air gap is not correctly inserted. - The X7 connector on the rinse board is not correctly inserted.
13	The Duo-Rinse tank was not completely filled within the max. filling time.	- The impeller rotation is wrong. - There is a leak in the plumbing circuit that connects the air gap to the rinse jets. - There is a leak in the CU. - The non return valve on the air gap doesn't work properly. - The DUO tank overflow is not inserted. - The Duo drain solenoid valve doesn't work properly and remains open. - The pressure sensor on the rinse board doesn't work properly. - The rinse board doesn't work properly.
14	The pressure sensor on the Duo-Rinse tank does not work correctly.	- The pressure sensor on the rinse board doesn't work properly. - The rinse board doesn't work properly.
15 *	The required temperature was not reached in the boiler within the max. heating time.	- The rinse water flow is too high. - A heating element or a heating element branch doesn't work properly. - The CU is not clean. - The boiler temperature sensor doesn't work properly. - The boiler heating element starter controller doesn't work properly or its coil is not correctly connected to the rinse board.
16	The water temperature in the boiler is too high.	- The "Boil. temp. start" parameter (bt5) or the "Boiler temper." parameter (bot) has been changed. - The relay that activates the boiler heating elements starter controller is stuck.
17	The boiler temperature sensor is short-circuited.	- The boiler temperature sensor is short-circuited.
18	The boiler temperature sensor is open.	- The boiler temperature sensor is open or disconnected. - The boiler temperature sensor connector is not correctly inserted. - The connector on the rinse board is not correctly inserted.
19 **	The required temperature was not reached in the Duo-Rinse tank within the max. heating time.	- The Duo rinse heating element doesn't work properly. - The Duo rinse temperature sensor doesn't work properly. - The Duo rinse heating element starter controller doesn't work properly or its coil is not correctly connected to the rinse board.
20	The water temperature in the Duo-Rinse tank is too high.	- The "Duo temper." parameter (dot) has been changed. - The relay that activates the Duo rinse heating element starter controller is stuck.
21	The Duo-Rinse tank temperature sensor is short-circuited.	- The Duo rinse temperature sensor is short-circuited.
22 **	The Duo-Rinse tank temperature sensor is open.	- The Duo rinse temperature sensor is open or disconnected. - The Duo rinse temperature sensor connector is not correctly inserted. - The connector on the rinse board is not correctly inserted.
23	The upper wash pump thermal protector has tripped. (just modular machines)	- The upper wash pump thermal protector is not correctly set. - The upper wash pump doesn't work properly. - The upper wash pump impeller is blocked.
	One of the following user's thermal protector has tripped: - wash pump - rinse pump - CU fan (just compact machines)	- The wash pump thermal protector is not correctly set. - The wash pump doesn't work properly. - The wash pump impeller is blocked. - The "Wash module" parameter (tty) is not correctly set. - The CU (Condensing Unit) fan thermal protector is not correctly set. - The CU fan doesn't work properly. - The rinse pump thermal protector is not correctly set. - The rinse pump doesn't work properly. - The rinse pump impeller is blocked.
24 **	The Duo-Rinse pump thermal protector has tripped.	- The Duo rinse pump thermal protector is not correctly set. - The Duo rinse pump doesn't work properly. - The Duo pump impeller is blocked.
25 **	The Duo-Rinse tank was not completely emptied within the max. emptying time.	- The drain is blocked. - The drain solenoid valve doesn't work properly. - The Duo rinse tank air trap is not clean.
27	The gear motor inverter has generated an allarm.	- The inverter or the gear motor doesn't work properly. Possible machine alarms documented on

Possible cause	Remedy
1) OCF overcurrent	- ramp too short - inertia or load too high - mechanical locking - check the state of the mechanism.

2) SCF motor short circuit	- insulation fault or short-circuit at the drive output	- check the cables connecting the drive to the motor , and the motor insulation.
3) InF internal fault	- internal fault	- check the environment (electromagnetic compatibility). - send the drive to be checked/repaired.
4) CFF configuration fault	- The current configuration is inconsistent - some parameters in the inverter have been modified	- return to factory settings.
5) SOF overspeed	- instability or - driving load too high - some parameters in the inverter have been modified	- return to factory settings.
6) CrF internal fault	- load relay control fault or damaged load resistor	- replace the drive.
7) OHF drive overload	- drive temperature too high	- check the motor load and the enviroment.Wait for the drive to cool down before restarting.
8) OLF motor overload	- triggered by motor current too high	- check the motor load. Wait for the drive to cool down before restarting.
9) OSF overvoltage	- line voltage too high - disturbed line supply	- check the line voltage. The overvoltage thresold is 415 V on the DC bus.
10) ObF overvoltage during deceleration	- braking too sudden or driving load.	- increase the deceleration time.
11) PHF line phase failure	- drive incorrectly supplied or a fuse blown - failure of one phase - unbalanced load	- check the power connection and the fuses. - reset.
12) USF undervoltage	- line supply too low - transient voltage dip - damaged load resistor	- check the voltage and the voltage parameter. The undervoltage threshold is 230 V on the DC bus. - replace the drive.

30 **	The Air gap was not completely emptied within the max. emptying time.	- The impeller rotation is wrong. - The non return valve on the air gap doesn't work properly. - The pressure sensor on the air gap doesn't work properly. - The air gap air trap is not clean.
31	The wash tank was not completely filled within the max. filling time.	- The wash tank water supply cock is not open. - The water load solenoid valve doesn't work properly. - The water feed flow is too low. - The water inlet filter is not clean. - The pressure sensor on the wash tank doesn't work properly. - The wash tank overflow has not been inserted. - The wash tank drain solenoid valve doesn't work properly and remains open. - The pressure sensor on the wash board doesn't work properly. - The wash board doesn't work properly.
32	The pressure sensor on the wash tank does not work correctly.	- The pressure sensor on the wash board doesn't work properly. - The wash board doesn't work properly.
33 **	The required temperature in the wash tank was not reached within the max. heating time.	- A heating element or a heating element branch of the wash board doesn't work properly. - The wash tank temperature sensor doesn't work properly. - The wash tank heating element starter controller doesn't work properly or its coil is not correctly connected to the rinse board.
34	The water temperature in the wash tank is too high.	- The "Tank temper." parameter (tut) or the "Sanit. temper." parameter (tSt) has been changed. - The relay that activates the wash tank heating elements starter controller is stuck.
35	The wash tank temperature sensor is short-circuited.	- The wash tank temperature sensor is short-circuited.
36 **	The wash tank temperature sensor is open.	- The wash tank temperature sensor is open or disconnected. - The wash tank temperature sensor connector is not correctly inserted. - The connector on the wash board is not correctly inserted.
37 ***	The upper wash pump thermal protector has tripped. (only modular rack type)	- The upper wash pump thermal protector is not correctly set. - The upper wash pump doesn't work properly. - The upper wash pump impeller is blocked.

38 **	The lower wash pump thermal protector has tripped. (just modular machines)	- The lower wash pump thermal protector is not correctly set. - The lower wash pump doesn't work properly. - The lower wash pump impeller is blocked. - The "Wash module" parameter (tty) is not correctly set.
39 **	The CU (Condensing unit) fan thermal protector has tripped. (just modular machines)	- The CU (Condensing Unit) fan thermal protector is not correctly set. - The CU fan doesn't work properly.
40 **	The wash tank was not completely emptied within the max. emptying time.	- The drain is blocked. - The drain solenoid valve doesn't work properly. - The wash tank air trap is not clean.
51	The prewash tank was not completely filled within the max. filling time.	- The prewash tank water supply cock is not open. - The water load solenoid valve doesn't work properly. - The water feed flow is too low. - The water inlet filter is not clean. - The load solenoid valve filter is not clean. - The prewash tank pressure sensor doesn't work properly. - The prewash tank overflow has not been inserted. - The prewash tank drain solenoid valve doesn't work properly and remains open. - The pressure sensor on the prewash board doesn't work properly. - The prewash board doesn't work properly.
52	The pressure sensor on the prewash tank does not work correctly.	- The pressure sensor on the prewash board doesn't work properly. - The prewash board doesn't work properly.
53 **	The required temperature in the prewash tank was not reached within the max. heating time.	- A heating element or a heating element branch of the prewash board doesn't work properly. - The prewash tank temperature sensor doesn't work properly. - The prewash tank heating element starter controller doesn't work properly or its coil is not correctly connected to the rinse board.
54	The water temperature in the prewash tank is too high.	- The "Tank temper." parameter (Prt) or the "Sanit. temper." parameter (PSt) has been changed. - The relay that activates the wash tank heating elements remote control switch is stuck.
55	The prewash tank temperature sensor is short-circuited.	- The prewash tank temperature sensor is short-circuited.
56 **	The prewash tank temperature sensor is open.	- The prewash tank temperature sensor is open or disconnected. - The prewash tank temperature sensor connector is not correctly inserted. - The connector on the prewash board is not correctly inserted.
57 **	The prewash pump thermal protector has tripped.	- The prewash pump thermal protector is not correctly set. - The prewash pump doesn't work properly. - The prewash pump impeller is blocked.
58 **	The prewash tank was not completely emptied within the max. emptying time.	- The drain is blocked. - The drain solenoid valve doesn't work properly. - The prewash tank air trap is not clean.
71 **	The required temperature in the drying tunnel was not reached within the max. heating time.	- The DT heating element or the DT heating element branch doesn't work properly. - The DT temperature sensor doesn't work properly. - The DT heating element starter controller doesn't work properly or its coil is not correctly connected to the rinse board.
72	The drying tunnel temperature is too high.	- The "Dt temper." parameter (dtt) has been changed. - The relay that activates the DT heating element starter controller is stuck. - The DT fan doesn't work properly. - The DT temperature sensor doesn't work properly.
73	The drying tunnel temperature sensor is short-circuited.	- The DT temperature sensor is short-circuited.
74 ****	The drying tunnel temperature sensor is open.	- The DT temperature sensor is open or disconnected. - The DT temperature sensor connector is not correctly inserted. - The connector on the DT board is not correctly inserted.
75 **	The drying tunnel fan thermal protector has tripped.	- The DT fan thermal protector is not correctly set. - The DT fan doesn't work properly.
76	The gear motor supplied current is higher than the maximum value allowed for the "Max motor curr.".	- The wire connected from the inverter (Do terminal block) to the elctronic board (X7-5) is short-circuited with the ground. - The inverter parameters are not correctly set.
77	The gear motor supplied current is lower than the minimum value allowed for the gear motor current.	- The wire connected from the inverter (Do terminal block) to the electronic board (X7-5) is open. - The inverter parameters are not correctly set. - The gear motor is configured with star connection and it must be configured with delta connections.
82 **	The required temperature was not reached in the first boiler within the max. heating time.	- The rinse water flow is too high. - A heating element or a heating element branch doesn't work properly. - The CU is not clean. - The first boiler temperature sensor doesn't work properly. - The first boiler heating element starter controller doesn't work properly or its coil is not correctly connected to the rinse board.
83	The water temperature in the first boiler is too high.	- The "Boil. temp. start" parameter (bts) or the "Boiler temper." parameter (bot) has been changed. - The relay that activates the first boiler heating elements starter controller is stuck.

84	The first boiler temperature sensor is short-circuited.	- The first boiler temperature sensor is short-circuited.
85	The first boiler temperature sensor is open.	- The first boiler temperature sensor is open or disconnected. - The first boiler temperature sensor connector is not correctly inserted. - The connector on the rinse board is not correctly inserted.
89	The temperature on the user interface is too high.	- Presence of steam too hot on the user interface board. - The user interface doesn't work properly.
90 (modular machines) CoM Err (compact machines)	Communication problems between machine electronic boards.	- The bus connection cables are not correctly connected to all the boards. - One or more boards don't work properly. - The "Appl. type" parameter (APt) is not correctly set. - The connector X6 is not correctly connected. When alarm 90 appears, the display will show the name (modular rack type) or the number (compact rack type), of the electronic board that generated the communication error. 2: wash and rinse 3: prewash 4: dt If, after a communication error, the machine is able to re-enable the communication between the boards, the following message appears on the display: Modular: PRESS (I) Compact: no / CoM / Err
91	User interface board (modular rack type) or power board connectedto the user interface board (compact rack type) out of order.	- The user interface board doesn't work properly (modular rack type). - The Power board connected to the user interface board doesn't work properly (compact rack type) - The user interface board doesn't work properly (compact rack type). - The connection between the user card and power card is damaged (compact rack type).

* If the value of the parameter "Heat tim. enable" (HtE) is "Yes" (1), the machine stops when this alarm appears. If the parameter value is "No" (0), the machine does not shut down when this alarm appears.

** The machine does not shut down if these alarms appear. A message indicating the alarm number is shown on the display every 3 minutes. The "alarm" LED flashes, but the machine continues to carry out the normal operations.

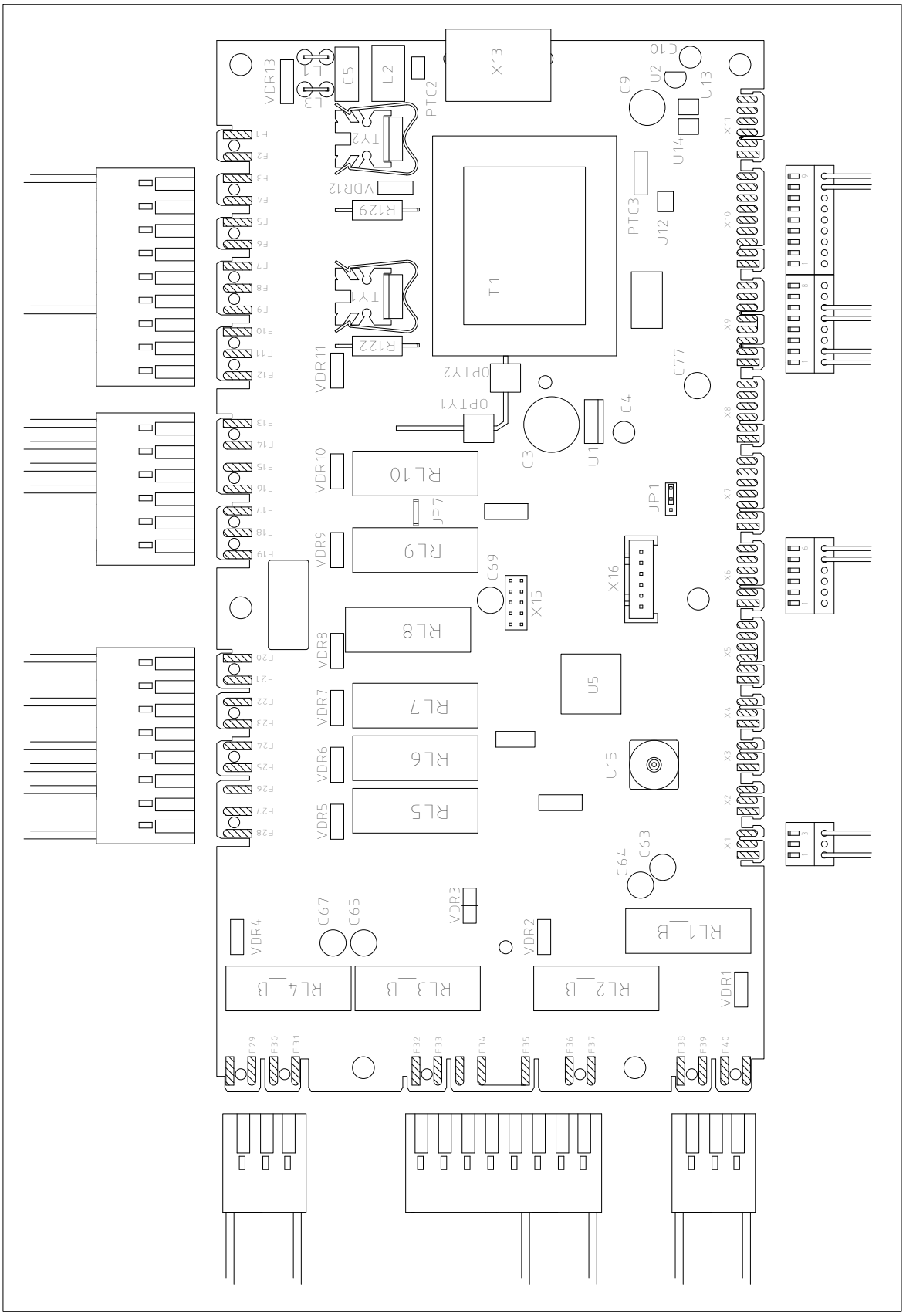
*** In WTM140 versions the machine stops when this alarm appears. In all the other models the machine continues to work.

**** With Dt/ Hab standard models the machine shuts down when this alarm appears, but does not in the new Dt/ Hab versions.

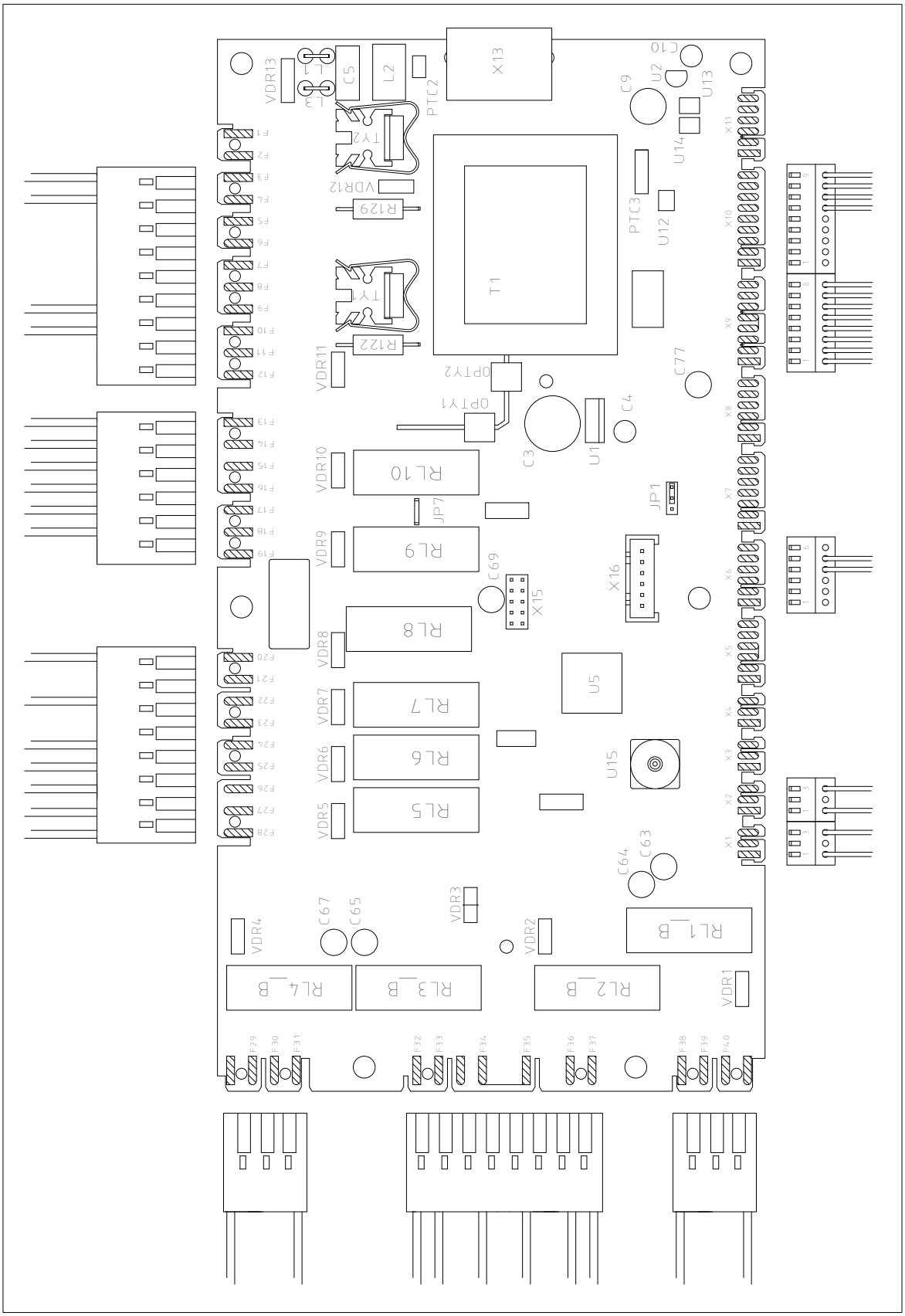
E POWER BOARDS CONNECTORS LAYOUT

PREWASH

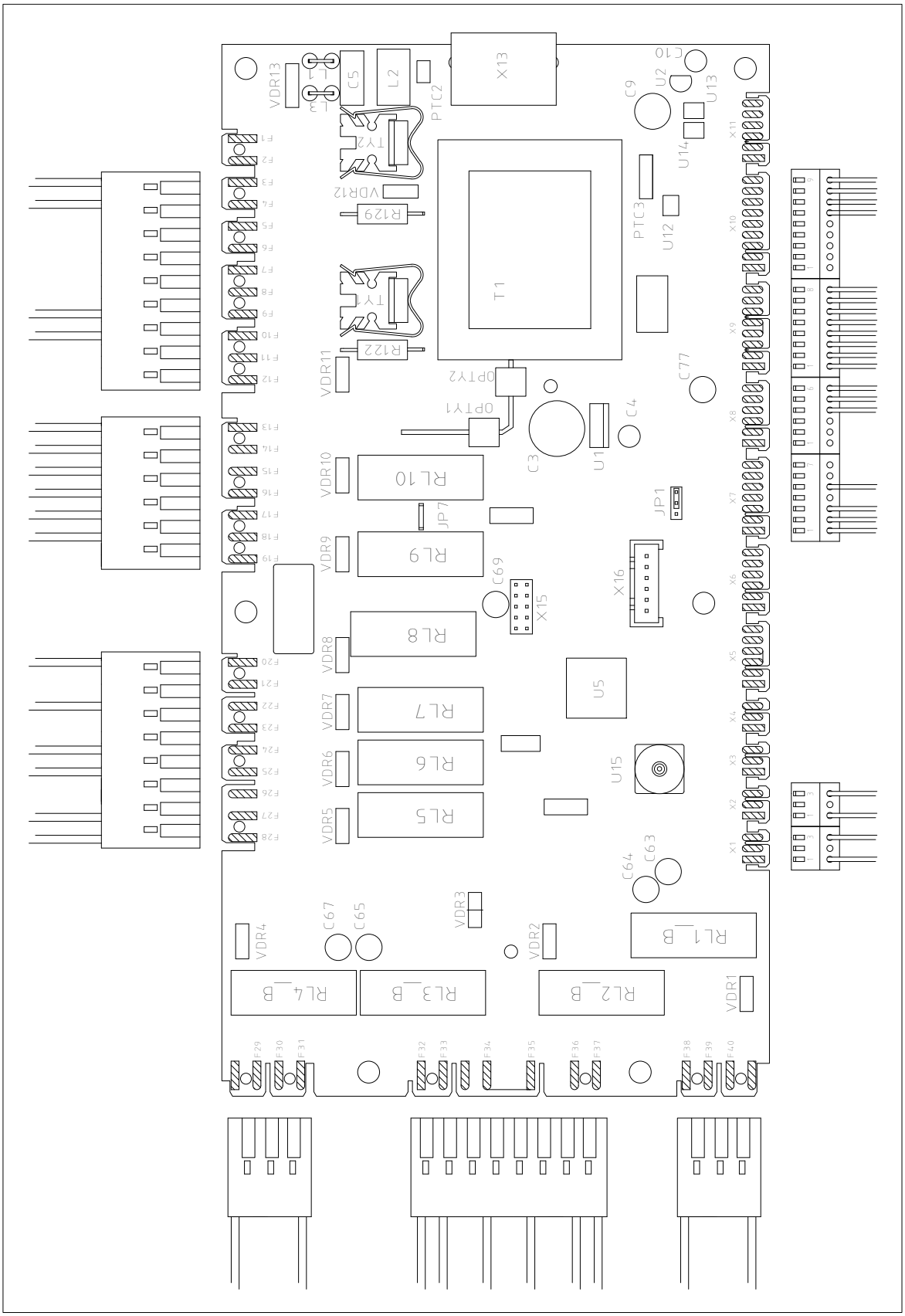
(MODULAR RACK TYPE)



WASH
(MODULAR RACK TYPE)

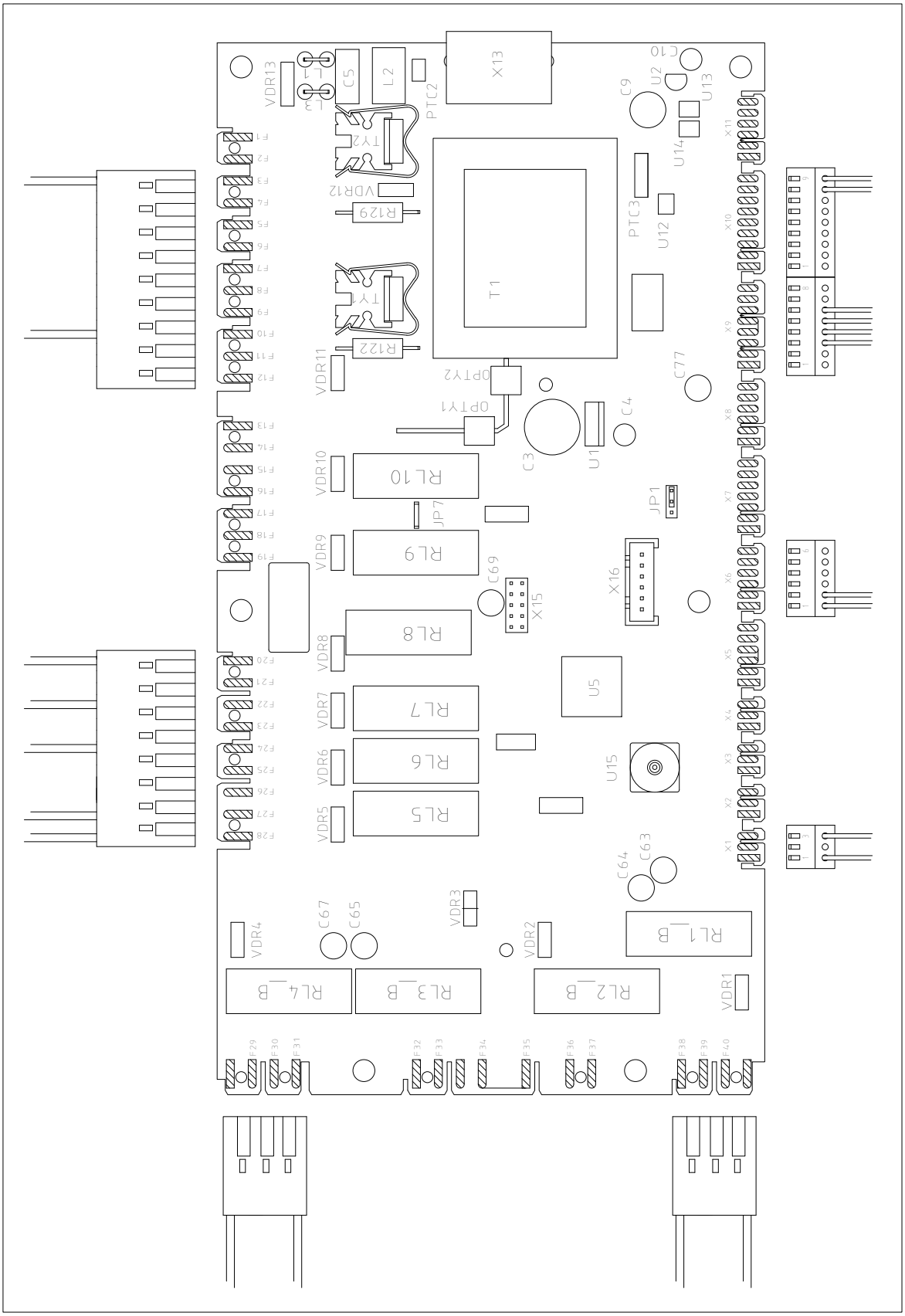


RINSE
(MODULAR RACK TYPE)



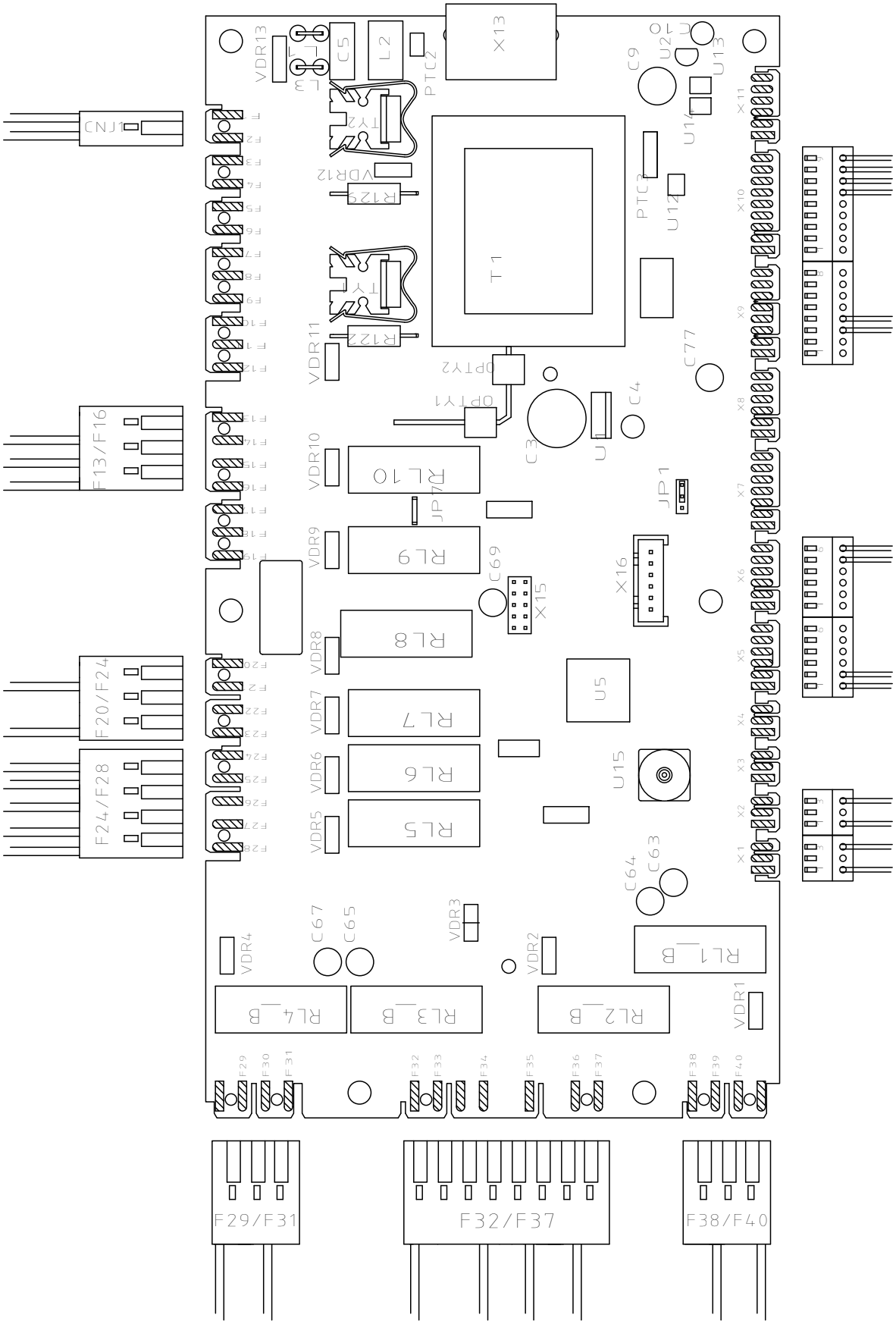
DT

(MODULAR RACK TYPE)

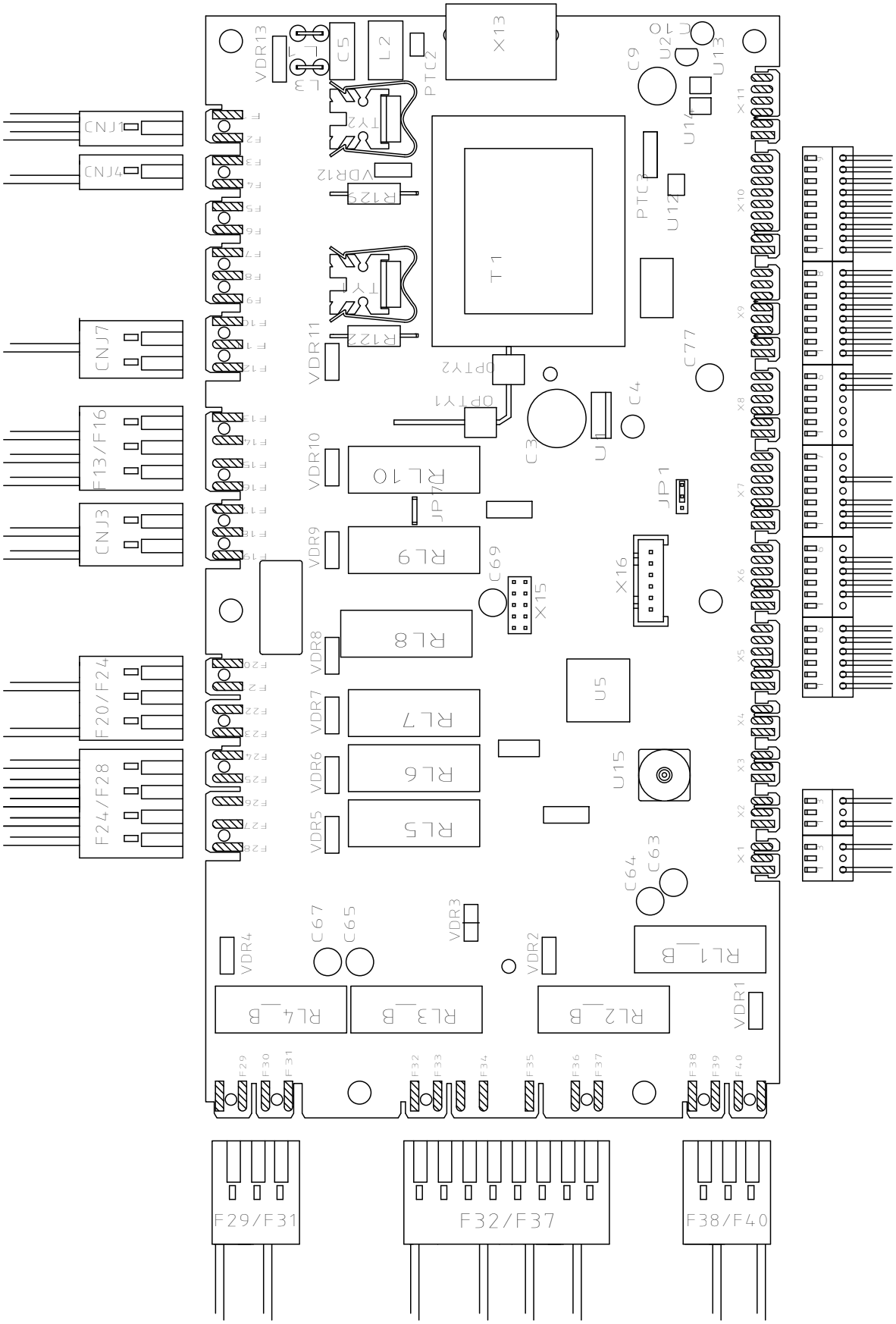


PREWASH

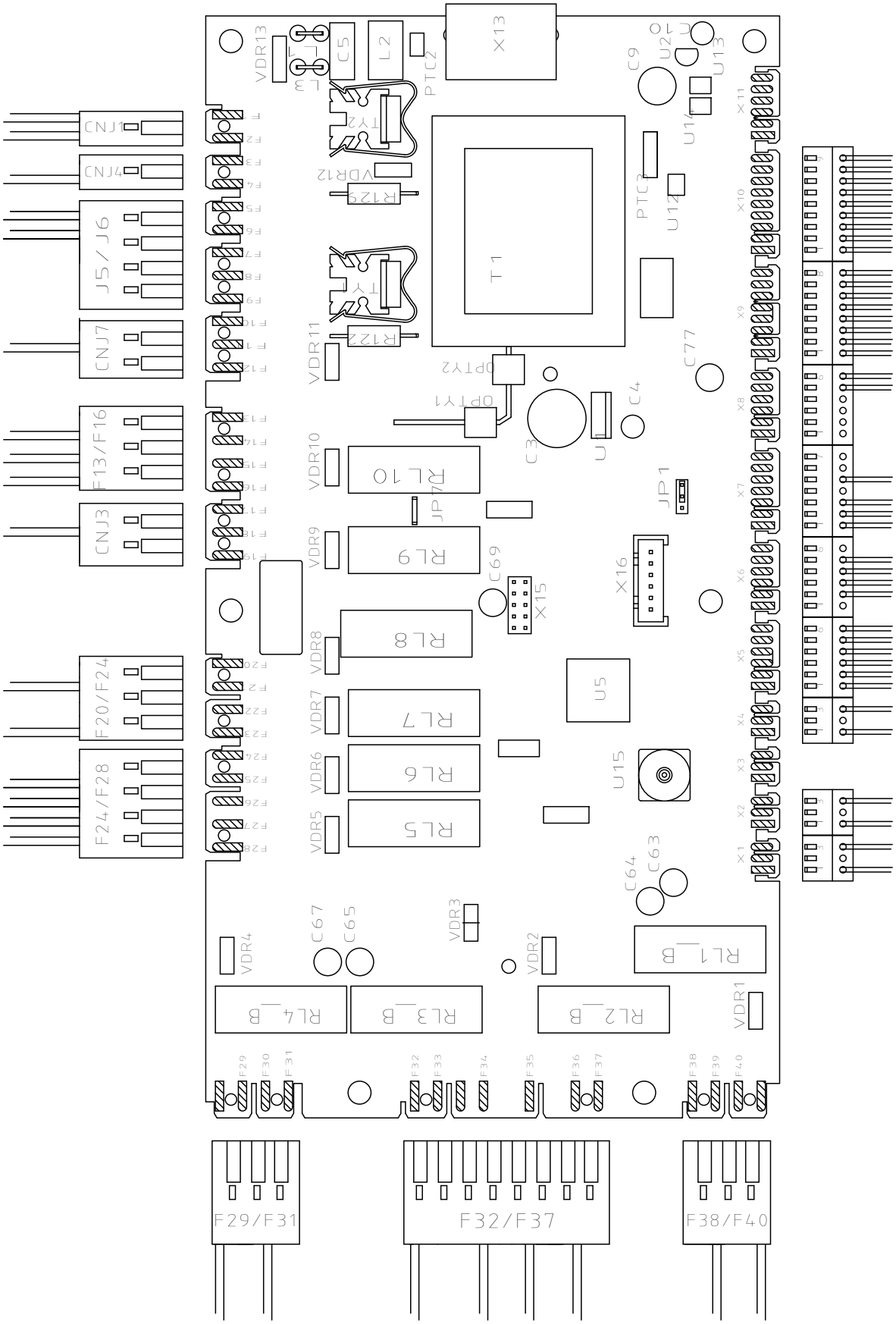
(COMPACT RACK TYPE)



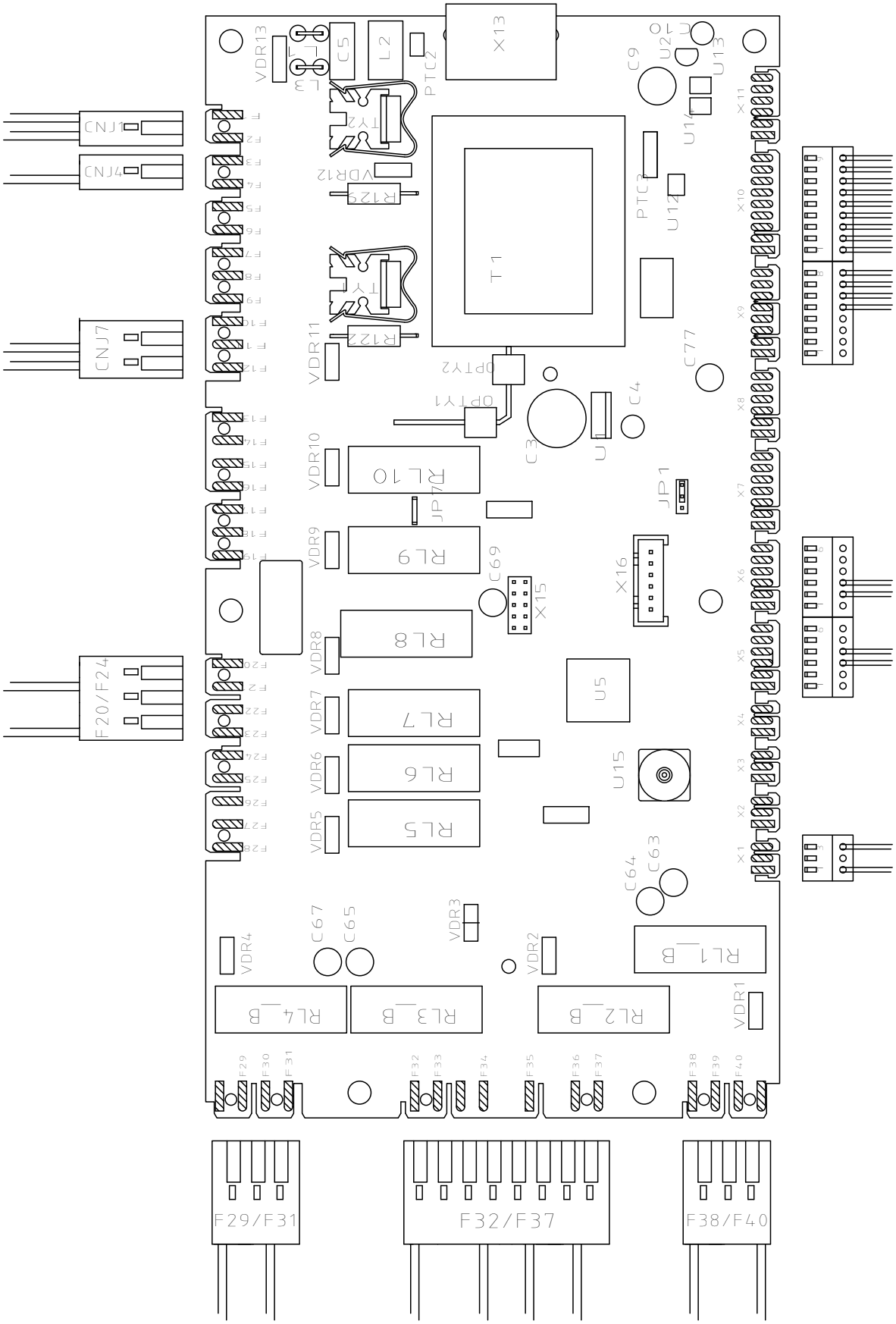
WASH + RINSE 1165 - 1490
(COMPACT RACK TYPE)



WASH + RINSE 44”
(COMPACT RACK TYPE)



DT
(COMPACT RACK TYPE)



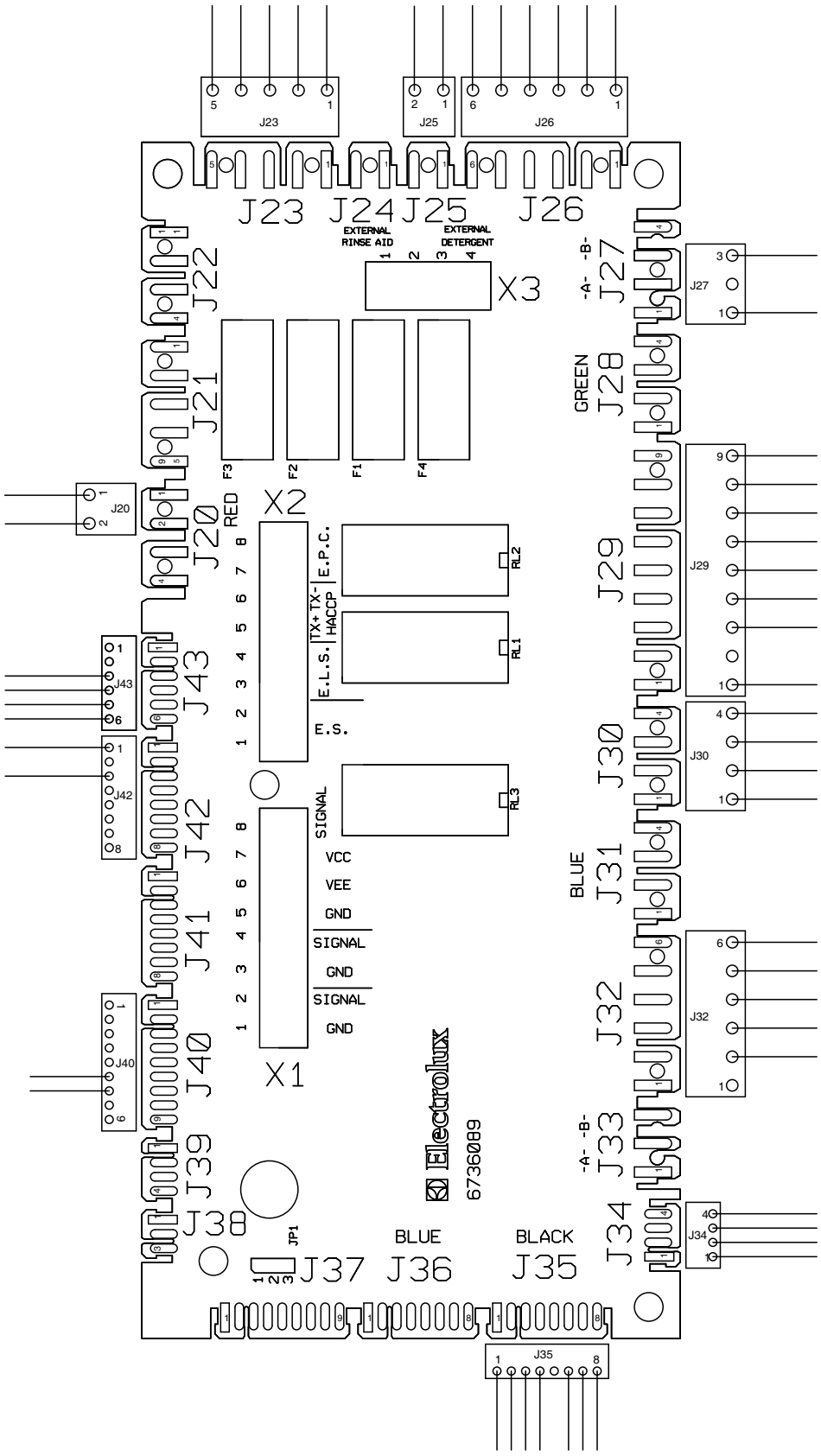
LEGEND

F 3- F12	Main supply connector
F13-F16	Loads connector
F20-F28	Loads connector
F21-F31	Loads connector
F32-F37	Loads connector
F38-F40	Loads connector
x1	Temperature sensor connector
x2	Temperature sensor connector
x4	Temperature sensor connector
x5	Thermal protection, autostart, emergency switch
x6	Board identification connector
x7	Air gap pressure sensor connector
x8	Gearmotor speed signal connector
x9	Thermal protection, autostart, emergency switch
x10	Door switch connector - user interface

MULTICONNECTOR BOARDS CONNECTORS LAYOUT

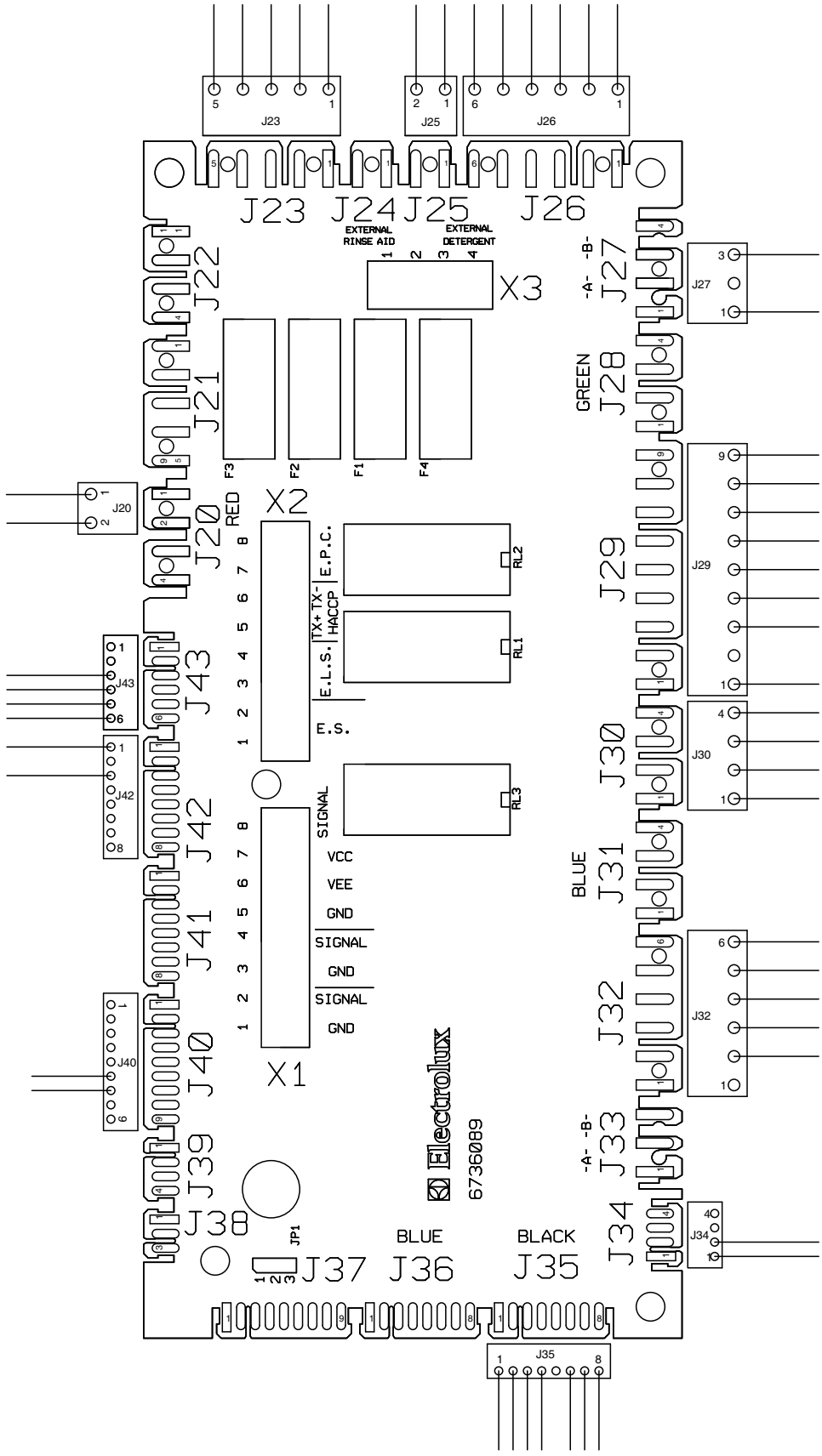
PREWASH 600 - 1160 - 1490

(COMPACT RACK TYPE)



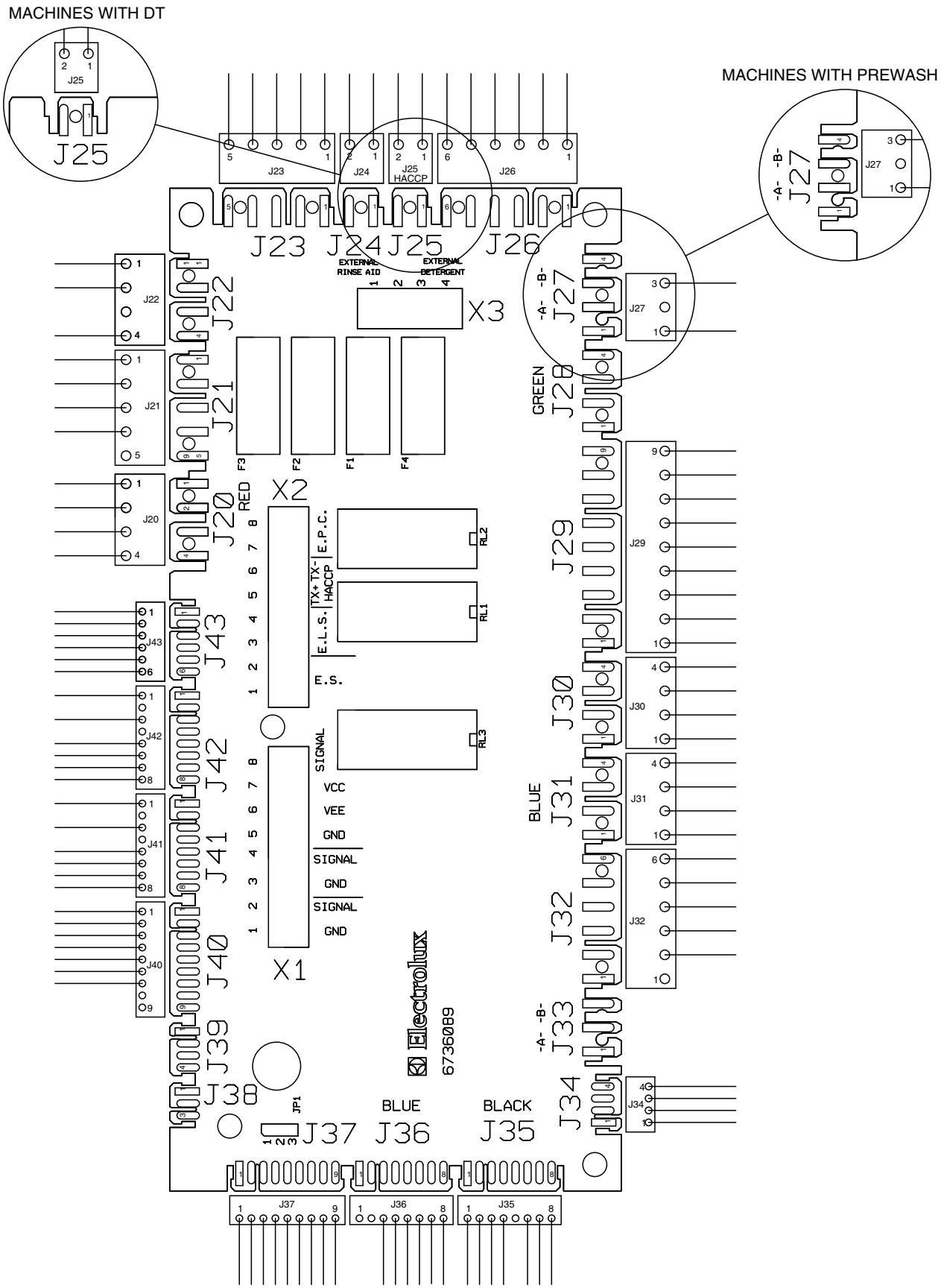
PREWASH 22”

(COMPACT RACK TYPE)



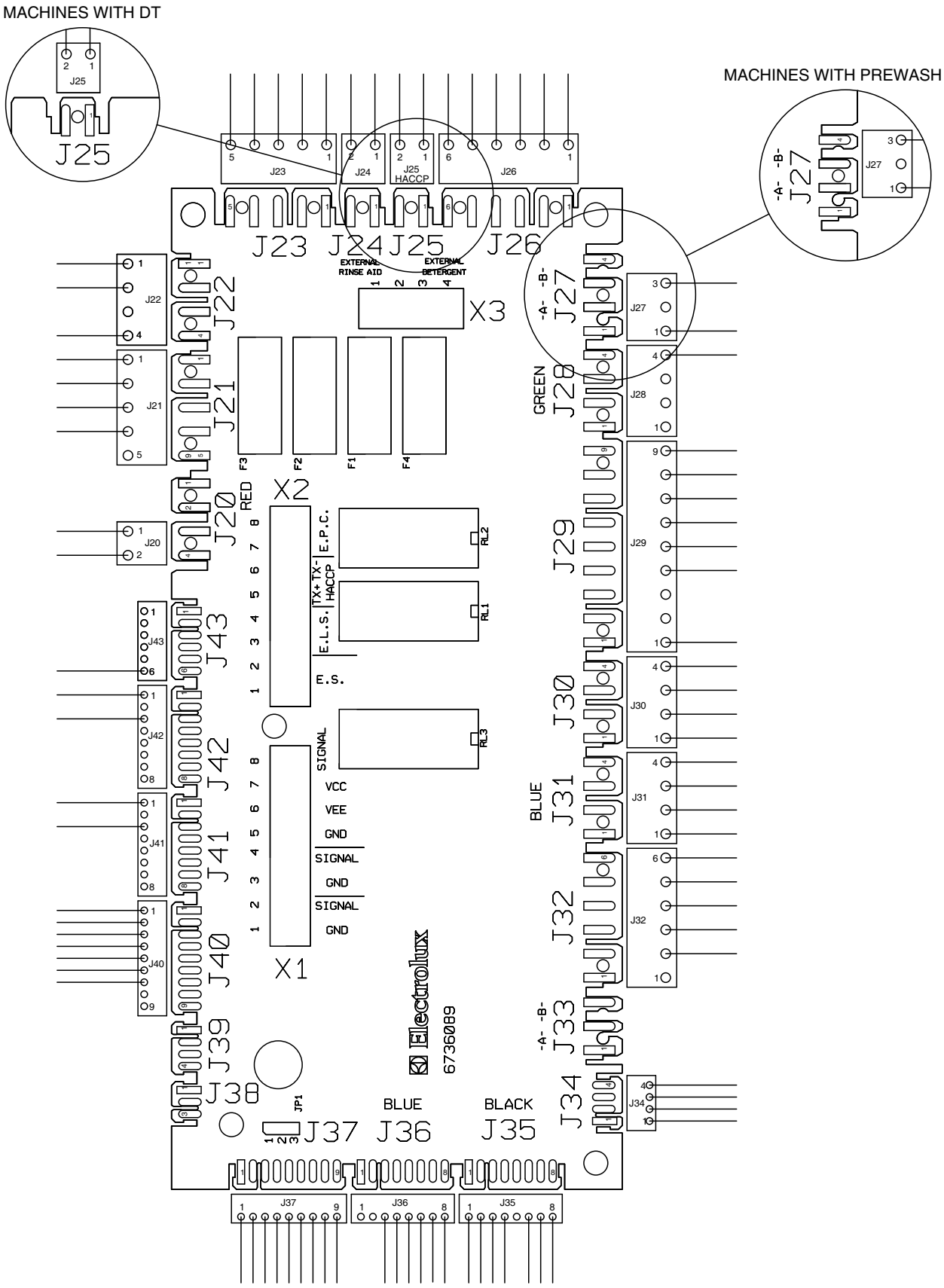
WASH + RINSE 1165 - 1490

(COMPACT RACK TYPE)

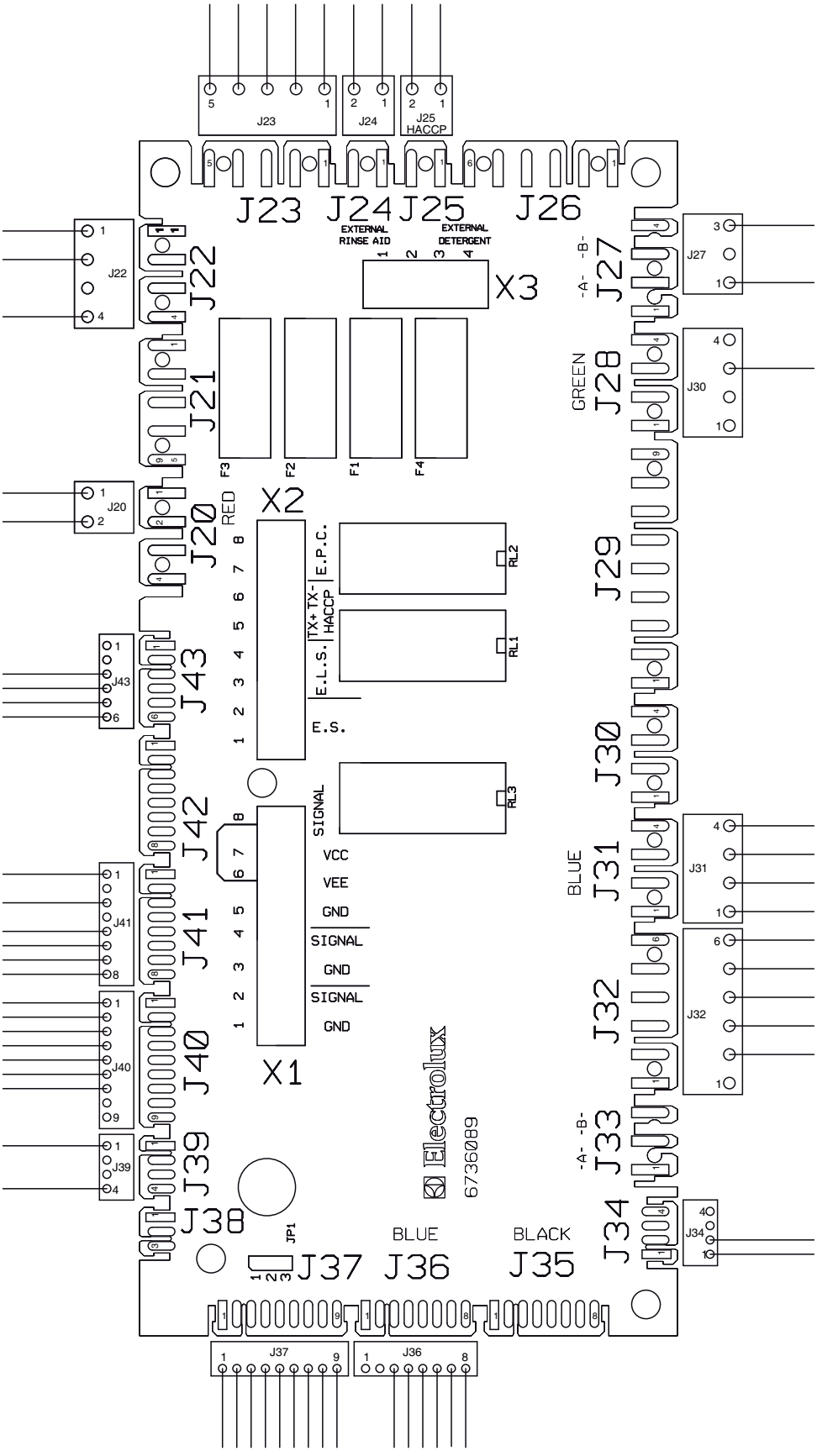


WASH + RINSE 44”

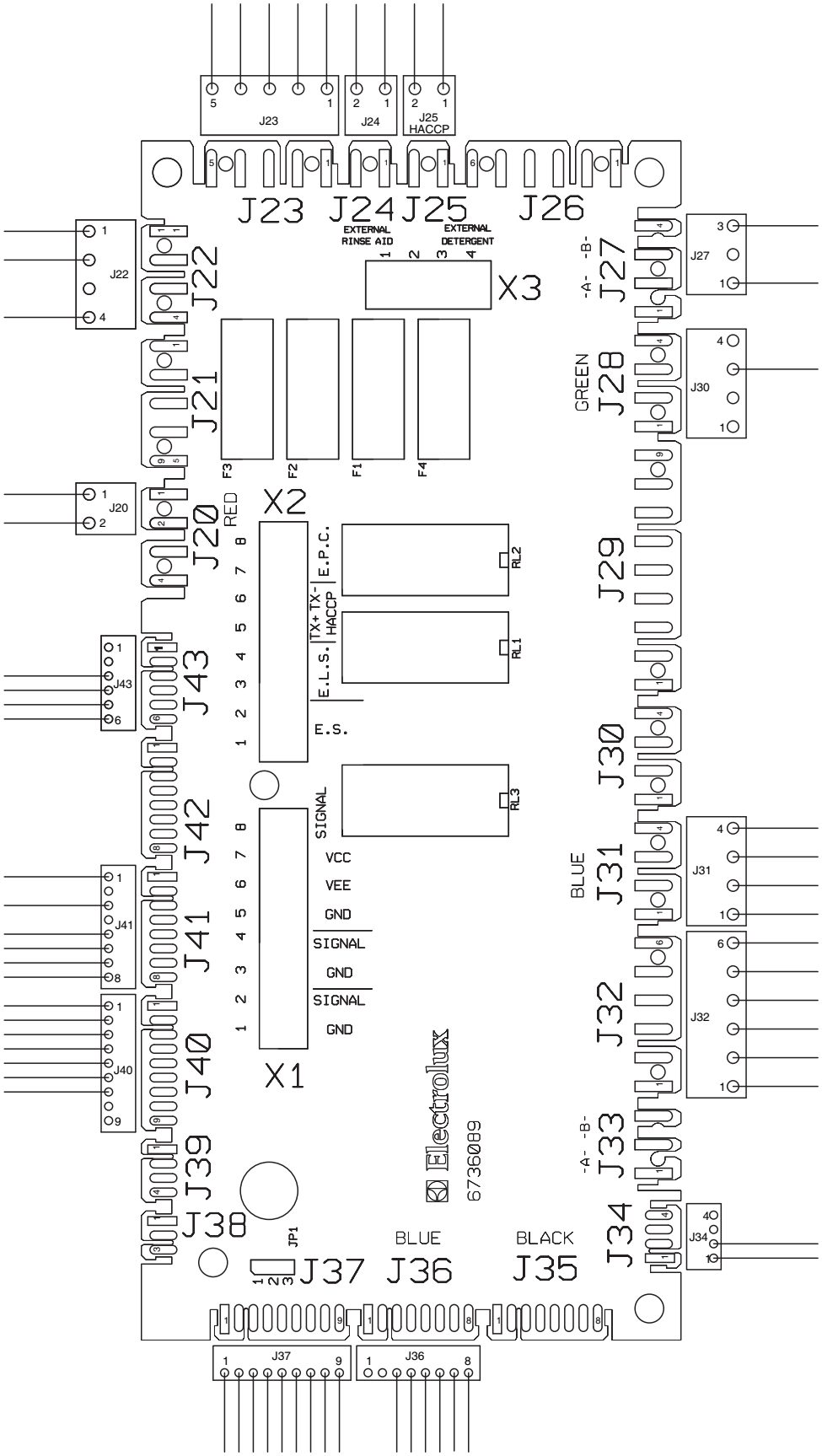
(COMPACT RACK TYPE)



DT 90°
(COMPACT RACK TYPE)



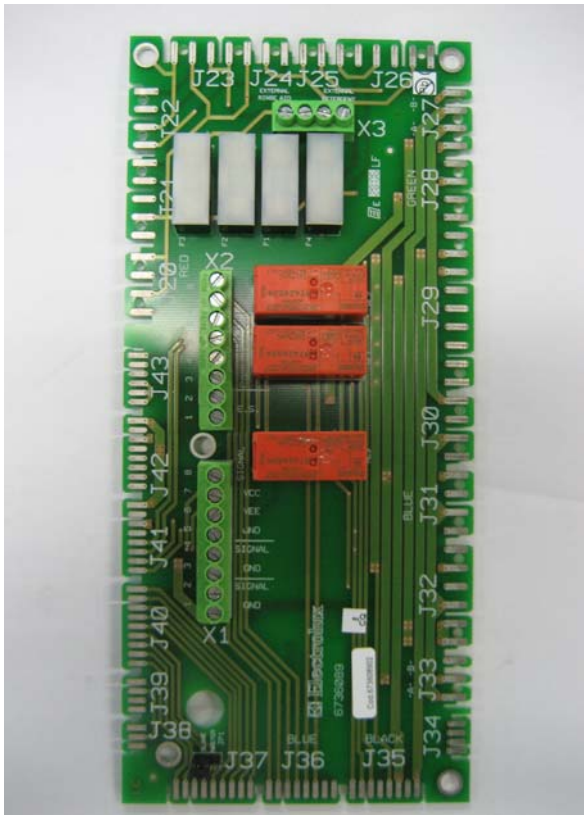
DT 600 / DT 900
(COMPACT RACK TYPE)



JUMPER JP1 BRIDGE POSITION

Old PCB terminal board

New PCB terminal board



MODULE	OLD PCB TERMINAL BOARD	NEW PCB TERMINAL BOARD
DT - HAB 600/ 900/ 90°	Pos. 2-3	Pos. 1-2
COMPACT - WASH+ RINSE WITHOUT HAB - DT	Pos. 2-3	Pos. 1-2
COMPACT - WASH+ RINSE WITH HAB - DT	Pos. 1-2	Pos. 2-3
PREWASH	Pos. 1-2	Pos. 2-3

MODULE COMPOSITION FOR MODULAR AND COMPACT RACK TYPE

MODULAR RACK TYPE	RINSE	WASH		PREWASH		
	600	1165	1490	600	1165	1490
WTM140	X	X	-	-	-	-
WTM165	X	-	X	-	-	-
WTM180	X	X	-	X	-	-
WTM200	X	-	X	X	-	-
WTM250	X	-	X	-	X	-
WTM300	X	-	X	-	-	X
COMPACT RACK TYPE		WASH + RINSE		PREWASH		
		1165 - 44”	1490	600 - 22”	1165	
RTC90/CTC90/WTC90		X	-	-	-	
RTC140/CTC140/WTC140		-	X	-	-	
RTC180/CTC180/WTC180		X	-	X	-	
RTC220/CTC220/WTC220		X	-	-	X	
WT44		X	-	-	-	
WT66		X	-	X	-	